Tektronix to VXI Technology Cross-Reference Guide

USER'S MANUAL

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VXI Technology, Inc.

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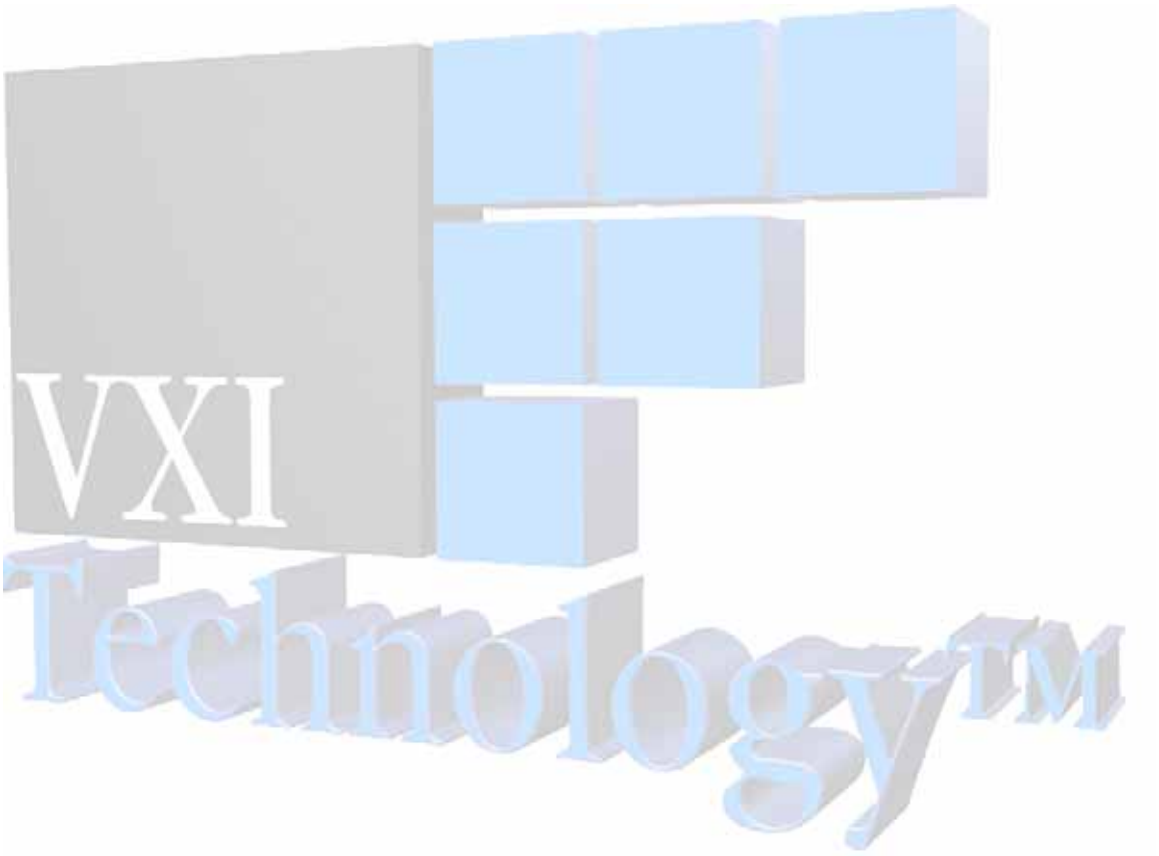
VXI
Technology™

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CERTIFICATION

VXI Technology, Inc. (VTI) certifies that this product met its published specifications at the time of shipment from the factory. VTI further certifies that its calibration measurements are traceable to the United States National Institute of Standards and Technology (formerly National Bureau of Standards), to the extent allowed by that organization's calibration facility, and to the calibration facilities of other International Standards Organization members.

WARRANTY

The product module referred to herein is warranted against defects in material and workmanship for a period of one year from the receipt date of the product at customer's facility. The sole and exclusive remedy for breach of any warranty concerning these goods shall be repair or replacement of defective parts, or a refund of the purchase price, to be determined at the option of VTI.

For warranty service or repair, this product must be returned to a VXI Technology authorized service center. The product shall be shipped prepaid to VTI and VTI shall prepay all returns of the product to the buyer. However, the buyer shall pay all shipping charges, duties, and taxes for products returned to VTI from another country.

VTI warrants that its software and firmware designated by VTI for use with a product will execute its programming when properly installed on that product. VTI does not however warrant that the operation of the product, or software, or firmware will be uninterrupted or error free.

LIMITATION OF WARRANTY

The warranty shall not apply to defects resulting from improper or inadequate maintenance by the buyer, buyer-supplied products or interfacing, unauthorized modification or misuse, operation outside the environmental specifications for the product, or improper site preparation or maintenance.

RESTRICTED RIGHTS LEGEND

Use, duplication, or disclosure by the Government is subject to restrictions as set forth in subdivision (b)(3)(II) of the Rights in Technical Data and Computer Software clause in DFARS 252.227-7013.

VXI Technology, Inc.
2031 Main Street
Irvine, CA 92614-6509 U.S.A.

DECLARATION OF CONFORMITY

Declaration of Conformity According to ISO/IEC Guide 22 and EN 45014

MANUFACTURER'S NAME	VXI Technology, Inc.
MANUFACTURER'S ADDRESS	2031 Main Street Irvine, California 92614-6509
PRODUCT NAME	Tektronix Replacement Modules
MODEL NUMBER(S)	SM4330A, SM4350A, SM4351A, SM4357A, SM4350, SM4351, SM4357, SM4320, SM4380, SM4330, VTI4101A, VTI73A308, VTI4801, VTI4802, SM4801, SM4802
PRODUCT OPTIONS	All
PRODUCT CONFIGURATIONS	All

VXI Technology, Inc. declares that the aforementioned product conforms to the requirements of the Low Voltage Directive 73/23/EEC *and the* EMC Directive 89/366/EEC *(inclusive* 93/68/EEC*) and carries the "CE" mark accordingly. The product has been designed and manufactured according to the following specifications:*

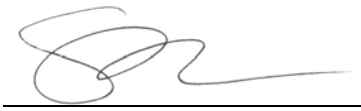
SAFETY	EN61010 (2001)
EMC	EN61326 (1997 w/A1:98) Class A CISPR 22 (1997) Class A VCCI (April 2000) Class A ICES-003 Class A (ANSI C63.4 1992) AS/NZS 3548 (w/A1 & A2:97) Class A FCC Part 15 Subpart B Class A EN 61010-1:2001

The product was installed into a C-size VXI mainframe chassis and tested in a typical configuration.

I hereby declare that the aforementioned product has been designed to be in compliance with the relevant sections of the specifications listed above as well as complying with all essential requirements of the Low Voltage Directive.

January 2005

CE



Steve Mauga, QA Manager

GENERAL SAFETY INSTRUCTIONS

Review the following safety precautions to avoid bodily injury and/or damage to the product. These precautions must be observed during all phases of operation or service of this product. Failure to comply with these precautions, or with specific warnings elsewhere in this manual, violates safety standards of design, manufacture and intended use of the product.

Service should only be performed by qualified personnel.

TERMS AND SYMBOLS

These terms may appear in this manual:

WARNING Indicates that a procedure or condition may cause bodily injury or death.

CAUTION Indicates that a procedure or condition could possibly cause damage to equipment or loss of data.

These symbols may appear on the product:

ATTENTION - Important safety instructions

Frame or chassis ground

WARNINGS

Follow these precautions to avoid injury or damage to the product:

Use Proper Power Cord To avoid hazard, only use the power cord specified for this product.

Use Proper Power Source To avoid electrical overload, electric shock, or fire hazard, do not use a power source that applies other than the specified voltage.

Use Proper Fuse To avoid fire hazard, only use the type and rating fuse specified for this product.

WARNINGS (CONT.)

Avoid Electric Shock

To avoid electric shock or fire hazard, do not operate this product with the covers removed. Do not connect or disconnect any cable, probes, test leads, etc. while they are connected to a voltage source. Remove all power and unplug unit before performing any service. ***Service should only be performed by qualified personnel.***

Ground the Product

This product is grounded through the grounding conductor of the power cord. To avoid electric shock, the grounding conductor must be connected to earth ground.

Operating Conditions

To avoid injury, electric shock or fire hazard:

- Do not operate in wet or damp conditions.
- Do not operate in an explosive atmosphere.
- Operate or store only in specified temperature range.
- Provide proper clearance for product ventilation to prevent overheating.
- DO NOT operate if you suspect there is any damage to this product. ***Product should be inspected or serviced only by qualified personnel.***

SUPPORT RESOURCES

Support resources for this product are available on the Internet and at VXI Technology customer support centers.

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Visit http://www.vxitech.com for worldwide support sites and service plan information.

SECTION 1

INTRODUCTION

OVERVIEW

VXI products have been in the marketplace since 1987. As with older GPIB products, certain VXIbus products are now running into obsolescence problems, particularly if they were ported onto VXI from an older product. Over the last ten years, VXI Technology, Inc. (VTI) has provided products to replace such obsolete instruments, specializing in translation drivers, cross-reference cable assemblies and other solutions to minimize the impact of re-engineering the existing test station design.

As of March 31, 2001, Tektronix™ terminated their VXI line. This leaves users who have standardized on certain Tektronix products, or have ATE built around these Tektronix products, with "ATE Obsolescence" issues. Changing from these Tektronix products to an alternate family of products would traditionally require a large investment that would involve extensive rewriting or translation of code, re-engineering of test adapters and re-verification of new test programs.

CROSS-REFERENCED PRODUCTS

VXI Technology has created a program that allows specific Tektronix products to be replaced with functionally superior products that will be supported for at least the next 10 - 15 years. This approach will enable existing Tektronix VXI product users to continue building systems with minimal engineering impact, and yet provide an upgrade path that can fully utilize the benefits of our line of modular switches and instruments. These benefits include reduced size, improved signal integrity, faster system throughput and lower overall system cost. The cross-referenced products (Table 1-1) all come with translation driver source coded and connector cross-reference documentation, minimizing engineering efforts associated with changing products.

OBSOLETE TEKTRONIX VXI PRODUCT	CROSS-REFERENCED VTI PRODUCT
SIGNAL SWITCHING	**SIGNAL SWITCHING**
VX4350, *64 SPDT, 2 A, 220 V*	**SM4350**, *100 SPDT, 2 A, 220 V*
VX4350, *64 SPDT, 2 A, 220 V*	**SM4350A**, *64 SPDT, 2 A, 220 V*
VX4351, *40 SPST, 10 A*	**SM4351**, *40 SPST, 16 A*
VX4351, *40 SPST, 10 A*	**SM4351A**, *40 SPST, 10 A*
VX4357, *32 SPDT, 5 A*	**SM4357**, *60 SPDT, 5 A*
VX4357, *32 SPDT, 5 A*	**SM4351A**, *32 SPDT, 5 A*
VX4330, *120 Channel, 2 A Mux*	**SM4330/SM4330A**, *128 Channel, 2 A Mux*
VX4320, *8 (1 x 4) 1 GHz Muxes*	**SM4320**, *10 (1 x 4) 1 GHz Muxes*
VX4380, *4 (4 x 16) 2 A Matrix*	**SM4380**, *4 (4 x 16) 2 A + 2 (4 x 4) Matrices*
SurePath Switch Controller	Switch Controller Not Required
INSTRUMENTATION	**INSTRUMENTATION**
VX4101A, *DMM/CTR*	**VTI4101A**, *DMM/CTR*
73A308, *80 Channel 300 mA Open Collector*	**SM73A308**, *96 Channel 300 mA Open Collector*
VX4801, *48 Channel Isolated Digital I/O*	**VTI4801**, *48 Channel Non-Isolated Digital I/O*
VX4802, *80 Channel Digital I/O (TTL/CMOS)*	**VTI4802**, *96 Channel Digital I/O (TTL/CMOS)*
73A455, *Dual Channel MIL-STD-1553*	**AXI1553**, *Dual Channel MIL-STD-1553*

TABLE 1-1: CROSS-REFERENCE TABLE SIGNAL SWITCHING AND INSTRUMENTATION

In addition to the abovementioned cross-referenced products, other obsolete Tektronix VXI products are also provided for with functionally similar VTI products (Table 1-2). These products do not come with cross-reference documentation or translation drivers, but can be provided upon request.

OBSOLETE TEKTRONIX VXI PRODUCT	CROSS-REFERENCED VTI PRODUCT
INSTRUMENTATION	INSTRUMENTATION
VX4234, *4.5 Digit DMM*	**VM2710A**, *6.5 Digit DMM*
VX4286/87, *32 Channel Comparator*	**VM4016-2**, *32 Channel Comparator*
VX4790A, *25 MSample/s AWG*	**VM3640**, *50 MSample/s AWG*
VX4750, *25 MHz Function Generator*	**VM3640**, *20 MHz Function Generator*
VX4730, *12 Channel 16-bit D/A*	**VM3616A**, *16 Channel, 16-bit D/A*

TABLE 1-2: CROSS-REFERENCE TABLE OF INSTRUMENTATION

There are two main aspects associated with replacing obsolete instruments or switching systems: Hardware Interfacing and Software Programming.

The issues associated with the hardware interface concern the cabling/wiring from the switch/instrument to the interface adapter that connects the unit under test (UUT). Our cross-referenced products come with Excel spreadsheets and documentation that provide a pin-for-pin map between the obsolete Tektronix module and its equivalent replacement. VXI Technology also provides complete cable assemblies/subsystems for our instruments/switches under one part number, completely eliminating any internal engineering.

Minimizing the impact to existing application software becomes more difficult. Our cross-referenced products come with translation drivers that would replace the existing Tektronix drivers. These translation drivers map the key VXI*plug&play* function calls to the obsolete Tektronix hardware directly to our cross-referenced product (Figure 1-1). These drivers are provided with all source code so that users can modify or code additional functions.

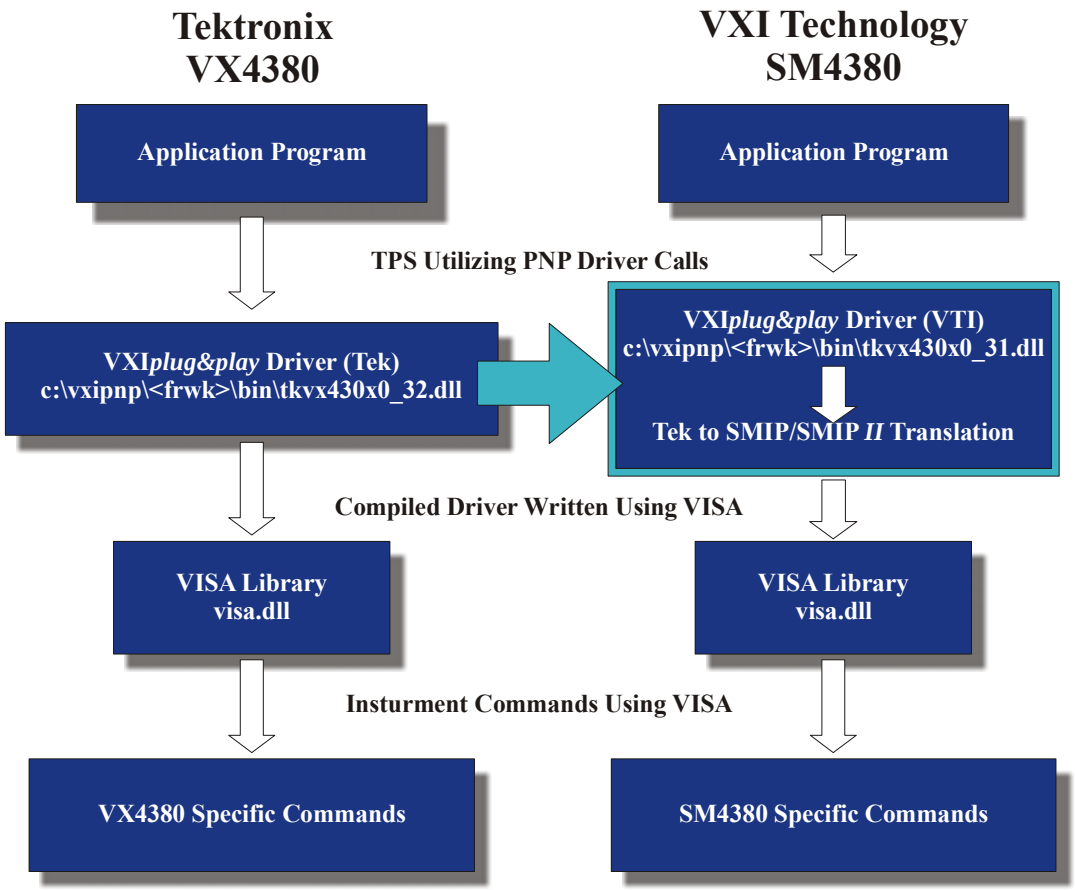


FIGURE 1-1: TEKTRONIX VX4380 TO VXI TECHNOLOGY SM4380

EXCEPTIONS

There will be some exceptions for cases where it is not possible for VXI Technology to emulate all functions of all Tektronix drivers. Exceptions are listed on an instrument by instrument basis. One global exception is manufacturer ID's and model codes. The VTI manufacturer and model codes will be returned as opposed to the Tektronix info.

MAINTAINING SIGNAL INTEGRITY THROUGH THE SWITCHING PATH

All SMIP *II* series switch modules are designed with over a decade of experience in signal switch development and are optimized to preserve signal integrity. All switch modules employ multi-layer PCB designs with extensive ground planes and shielding where appropriate with relays selected to maximize signal integrity. Signal ground planes are isolated from the control circuit grounds and signal paths are designed to minimize crosstalk between channels. To further minimize any digital noise, the control circuitry goes into a quiescent state when not processing commands, making it possible to switch low-level signals. Mating connector shrouds are also available to permit cable harnesses to be crimped, soldered or connected via terminal blocks, allowing the user to select the method of cabling most suitable for their application.

It is important to note that all shields on switch cards are brought out to the front panel. The intent is for the user to provide a path from ground to the shield pins to ensure signal integrity. If these shield pins are left floating, they can become a potential source of noise. All pinout reference tables indicate the location of the shield pins.

SECTION 2

VX4330 TO SM4330A: 120 CHANNEL, 2 A

SPECIFICATION COMPARISONS

GENERAL SPECIFICATIONS	Tektronix VX4330	VXI Technology SM4330A
MODEL TYPE	120 Channel Scanner/Mux Module	120 Channel Scanner/Mux Module
CONFIGURATION**	240 channel 1-wire 120 channel 2-wire 60 channel 4-wire	240 channel 1-wire 120 channel 2-wire 60 channel 4-wire
INTERFACE TYPE	Message Based, SCPI, IEEE 488.2	Register Based
VXI REVISION LEVEL	1.4	1.4
INSTRUMENT DRIVERS	WIN framework (Rev. 4.0) WIN95 framework (Rev. 4.0) WINNT framework (Rev. 4.0)	 WIN95 framework (Rev. 4.0) WINNT framework (Rev. 4.0)
RATED SWITCH OPERATIONS **Mechanical** **Electrical**	 1×10^8 1×10^5 (Full Load)	 5×10^7 5×10^5 (Full Load)
SCANNING RATE	125 cycles/s	> 300 cycles/s
MODULE SIZE	Single-wide, C-size	Single-wide, C-size
POWER SPECIFICATIONS		
MAXIMUM SWITCHING VOLTAGE	250 V dc or 250 V ac rms	300 V dc, 300 V ac
MAXIMUM SWITCHING CURRENT	< 30 V, 2 A / channel	2 A / channel
MAXIMUM SWITCHING POWER **DC** **AC**	 60 W / channel 125 VA / channel	 60 W / channel 125 VA / channel
DC PERFORMANCE		
PATH RESISTANCE	< 1.5 Ω	< 0.5 Ω
INSULATION RESISTANCE	$> 1 \times 10^7$ Ω	$> 1 \times 10^9$ Ω
AC PERFORMANCE		
BANDWIDTH (-3 dB)	> 10 MHz	> 40 MHz
CROSSTALK **100 kHz** **1 MHz** **10 MHz**	 < -80 dB < -50 dB Not Available	 < -90 dB < -70 dB < -50 dB

INTERFACING TO THE MODULE

The SM4330A has two 160-pin high density DIN connectors on its front panel for I/O interfacing. Mating connector and pin part numbers are referenced below. These parts can be ordered directly from VXI Technology or the manufacturer listed in the table.

ACCESSORIES			
70-0246-000: Connector Kit (Includes Two 160-Pin Connector, Two Backshells and a 500 Crimp Pin Reel)			
Desc: Connector Kit	Mfgr.: VXI Tech.	Mfgr P/N: 52-0236-000	Contact Info: 949-955-1VXI/www.vxitech.com
Desc: Connector	Mfgr.: ERNI	Mfgr P/N: 024070	Contact Info: 804-530-5012/www.ernicomponents.com
Desc: Backshell	Mfgr.: ERNI	Mfgr P/N: 173051	Contact Info: 804-530-5012/www.ernicomponents.com
Desc: Crimp Pins	Mfgr.: ERNI	Mfgr P/N: 014729	Contact Info: 804-530-5012/www.ernicomponents.com
27-0088-160: 160-Pin DIN Connector			
Desc: Connector	Mfgr.: ERNI	Mfgr P/N: 024070	Contact Info: 804-530-5012/www.ernicomponents.com
27-0236-001: Backshell			
Desc: Backshell	Mfgr.: ERNI	Mfgr P/N: 173051	Contact Info: 804-530-5012/www.ernicomponents.com
52-0109-001:Crimp Pins (500 Pin Reel)			
Desc: Crimp Pins	Mfgr.: ERNI	Mfgr P/N: 014729	Contact Info: 804-530-5012/www.ernicomponents.com

The SM4330A is designed to provide a pin-to-pin replica of the Tektronix VX4330. This eases the burden of integrating the SM4330A into preexisting test fixtures and makes re-cabling unnecessary. Translation drivers are provided to make the software transition seamless, enabling the VTI units to use the previously installed Tektronix driver calls. This ensures that any application code written using the Tektronix *plug&play* drivers need not be modified.

ONE WIRE MODE, UPPER CONNECTOR

SM4330A Upper Connector (J401) Pinout

Pin	a	b	c	d	e	Sect.
32	Enc_4b	GND	Enc_5b	GND	Enc_6b	4,5,6
31	Enc_4a	GND	Enc_5a	GND	Enc_6a	4,5,6
30	C19	C20	1W6aR	C39	C40	6
29	C15	C16	1W6a	C35	C36	6
28	C11	C12	Com6bHR	C31	C32	6
27	C07	C08	Com6bLR	C27	C28	6
26	C03	C04	Com6aHR	C23	C24	6
25	C17	C18	Com6aLR	C37	C38	6
24	C13	C14	Com6bH	C33	C34	6
23	C09	C10	Com6bL	C29	C30	6
22	C05	C06	Com6aH	C25	C26	6
21	C01	C02	Com6aL	C21	C22	6
20	C19	C20	1W5aR	C39	C40	5
19	C15	C16	1W5a	C35	C36	5
18	C11	C12	Com5bHR	C31	C32	5
17	C07	C08	Com5bLR	C27	C28	5
16	C03	C04	Com5aHR	C23	C24	5
15	C17	C18	Com5aLR	C37	C38	5
14	C13	C14	Com5bH	C33	C34	5
13	C09	C10	Com5bL	C29	C30	5
12	C05	C06	Com5aH	C25	C26	5
11	C01	C02	Com5aL	C21	C22	5
10	C19	C20	1W4aR	C39	C40	4
9	C15	C16	1W4a	C35	C36	4
8	C11	C12	Com4bHR	C31	C32	4
7	C07	C08	Com4bLR	C27	C28	4
6	C03	C04	Com4aHR	C23	C24	4
5	C17	C18	Com4aLR	C37	C38	4
4	C13	C14	Com4bH	C33	C34	4
3	C09	C10	Com4bL	C29	C30	4
2	C05	C06	Com4aH	C25	C26	4
1	C01	C02	Com4aL	C21	C22	4

TABLE 2-1: SM4330A UPPER CONNECTOR PINOUT

ONE WIRE MODE, LOWER CONNECTOR

SM4330A Lower Connector (J1201) Pinout

Pin	a	b	c	d	e	Sect.
32	Enc_1b	GND	Enc_2b	GND	Enc_3b	1,2,3
31	Enc_1a	GND	Enc_2a	GND	Enc_3a	1,2,3
30	C19	C20	1W3aR	C39	C40	3
29	C15	C16	1W3a	C35	C36	3
28	C11	C12	Com3bHR	C31	C32	3
27	C07	C08	Com3bLR	C27	C28	3
26	C03	C04	Com3aHR	C23	C24	3
25	C17	C18	Com3aLR	C37	C38	3
24	C13	C14	Com3bH	C33	C34	3
23	C09	C10	Com3bL	C29	C30	3
22	C05	C06	Com3aH	C25	C26	3
21	C01	C02	Com3aL	C21	C22	3
20	C19	C20	1W2aR	C39	C40	2
19	C15	C16	1W2a	C35	C36	2
18	C11	C12	Com2bHR	C31	C32	2
17	C07	C08	Com2bLR	C27	C28	2
16	C03	C04	Com2aHR	C23	C24	2
15	C17	C18	Com2aLR	C37	C38	2
14	C13	C14	Com2bH	C33	C34	2
13	C09	C10	Com2bL	C29	C30	2
12	C05	C06	Com2aH	C25	C26	2
11	C01	C02	Com2aL	C21	C22	2
10	C19	C20	1W1aR	C39	C40	1
9	C15	C16	1W1a	C35	C36	1
8	C11	C12	Com1bHR	C31	C32	1
7	C07	C08	Com1bLR	C27	C28	1
6	C03	C04	Com1aHR	C23	C24	1
5	C17	C18	Com1aLR	C37	C38	1
4	C13	C14	Com1bH	C33	C34	1
3	C09	C10	Com1bL	C29	C30	1
2	C05	C06	Com1aH	C25	C26	1
1	C01	C02	Com1aL	C21	C22	1

TABLE 2-2: SM4330A LOWER CONNECTOR PINOUT

TWO WIRE MODE, UPPER CONNECTOR

SM4330A Upper Connector (J401) Pinout

Pin	a	b	c	d	e	Sect.
32	Enc_4b	GND	Enc_5b	GND	Enc_6b	4,5,6
31	Enc_4a	GND	Enc_5a	GND	Enc_6a	4,5,6
30	C10Lo	C10Hi	1W6aR	C20Lo	C20Hi	6
29	C08Lo	C08Hi	1W6a	C18Lo	C18Hi	6
28	C06Lo	C06Hi	Com6bHR	C16Lo	C16Hi	6
27	C04Lo	C04Hi	Com6bLR	C14Lo	C14Hi	6
26	C02Lo	C02Hi	Com6aHR	C12Lo	C12Hi	6
25	C09Lo	C09Hi	Com6aLR	C19Lo	C19Hi	6
24	C07Lo	C07Hi	Com6bH	C17Lo	C17Hi	6
23	C05Lo	C05Hi	Com6bL	C15Lo	C15Hi	6
22	C03Lo	C03Hi	Com6aH	C13Lo	C13Hi	6
21	C01Lo	C01Hi	Com6aL	C11Lo	C11Hi	6
20	C10Lo	C10Hi	1W5aR	C20Lo	C20Hi	5
19	C08Lo	C08Hi	1W5a	C18Lo	C18Hi	5
18	C06Lo	C06Hi	Com5bHR	C16Lo	C16Hi	5
17	C04Lo	C04Hi	Com5bLR	C14Lo	C14Hi	5
16	C02Lo	C02Hi	Com5aHR	C12Lo	C12Hi	5
15	C09Lo	C09Hi	Com5aLR	C19Lo	C19Hi	5
14	C07Lo	C07Hi	Com5bH	C17Lo	C17Hi	5
13	C05Lo	C05Hi	Com5bL	C15Lo	C15Hi	5
12	C03Lo	C03Hi	Com5aH	C13Lo	C13Hi	5
11	C01Lo	C01Hi	Com5aL	C11Lo	C11Hi	5
10	C10Lo	C10Hi	1W4aR	C20Lo	C20Hi	4
9	C08Lo	C08Hi	1W4a	C18Lo	C18Hi	4
8	C06Lo	C06Hi	Com4bHR	C16Lo	C16Hi	4
7	C04Lo	C04Hi	Com4bLR	C14Lo	C14Hi	4
6	C02Lo	C02Hi	Com4aHR	C12Lo	C12Hi	4
5	C09Lo	C09Hi	Com4aLR	C19Lo	C19Hi	4
4	C07Lo	C07Hi	Com4bH	C17Lo	C17Hi	4
3	C05Lo	C05Hi	Com4bL	C15Lo	C15Hi	4
2	C03Lo	C03Hi	Com4aH	C13Lo	C13Hi	4
1	C01Lo	C01Hi	Com4aL	C11Lo	C11Hi	4

TABLE 2-3: SM4330A UPPER CONNECTOR PINOUT

TWO WIRE MODE, LOWER CONNECTOR

SM4330A Lower Connector (J1201) Pinout

Pin	a	b	c	d	e	Sect.
32	Enc_1b	GND	Enc_2b	GND	Enc_3b	1,2,3
31	Enc_1a	GND	Enc_2a	GND	Enc_3a	1,2,3
30	C10Lo	C10Hi	1W3aR	C20Lo	C20Hi	3
29	C08Lo	C08Hi	1W3a	C18Lo	C18Hi	3
28	C06Lo	C06Hi	Com3bHR	C16Lo	C16Hi	3
27	C04Lo	C04Hi	Com3bLR	C14Lo	C14Hi	3
26	C02Lo	C02Hi	Com3aHR	C12Lo	C12Hi	3
25	C09Lo	C09Hi	Com3aLR	C19Lo	C19Hi	3
24	C07Lo	C07Hi	Com3bH	C17Lo	C17Hi	3
23	C05Lo	C05Hi	Com3bL	C15Lo	C15Hi	3
22	C03Lo	C03Hi	Com3aH	C13Lo	C13Hi	3
21	C01Lo	C01Hi	Com3aL	C11Lo	C11Hi	3
20	C10Lo	C10Hi	1W2aR	C20Lo	C20Hi	2
19	C08Lo	C08Hi	1W2a	C18Lo	C18Hi	2
18	C06Lo	C06Hi	Com2bHR	C16Lo	C16Hi	2
17	C04Lo	C04Hi	Com2bLR	C14Lo	C14Hi	2
16	C02Lo	C02Hi	Com2aHR	C12Lo	C12Hi	2
15	C09Lo	C09Hi	Com2aLR	C19Lo	C19Hi	2
14	C07Lo	C07Hi	Com2bH	C17Lo	C17Hi	2
13	C05Lo	C05Hi	Com2bL	C15Lo	C15Hi	2
12	C03Lo	C03Hi	Com2aH	C13Lo	C13Hi	2
11	C01Lo	C01Hi	Com2aL	C11Lo	C11Hi	2
10	C10Lo	C10Hi	1W1aR	C20Lo	C20Hi	1
9	C08Lo	C08Hi	1W1a	C18Lo	C18Hi	1
8	C06Lo	C06Hi	Com1bHR	C16Lo	C16Hi	1
7	C04Lo	C04Hi	Com1bLR	C14Lo	C14Hi	1
6	C02Lo	C02Hi	Com1aHR	C12Lo	C12Hi	1
5	C09Lo	C09Hi	Com1aLR	C19Lo	C19Hi	1
4	C07Lo	C07Hi	Com1bH	C17Lo	C17Hi	1
3	C05Lo	C05Hi	Com1bL	C15Lo	C15Hi	1
2	C03Lo	C03Hi	Com1aH	C13Lo	C13Hi	1
1	C01Lo	C01Hi	Com1aL	C11Lo	C11Hi	1

TABLE 2-4: SM4330A LOWER CONNECTOR PINOUT

FOUR WIRE MODE, UPPER CONNECTOR

SM4330A Upper Connector (J401) Pinout

Pin	a	b	c	d	e	Sect.
32	Enc_4b	GND	Enc_5b	GND	Enc_6b	4,5,6
31	Enc_4a	GND	Enc_5a	GND	Enc_6a	4,5,6
30	C05bLo	C05bHi	1W6aR	C10bLo	C10bHi	6
29	C04bLo	C04bHi	1W6a	C09bLo	C09bHi	6
28	C03bLo	C03bHi	Com6bHR	C08bLo	C08bHi	6
27	C02bLo	C02bHi	Com6bLR	C07bLo	C07bHi	6
26	C01bLo	C01bHi	Com6aHR	C06bLo	C06bHi	6
25	C05aLo	C05aHi	Com6aLR	C10aLo	C10aHi	6
24	C04aLo	C04aHi	Com6bH	C09aLo	C09aHi	6
23	C03aLo	C03aHi	Com6bL	C08aLo	C08aHi	6
22	C02aLo	C02aHi	Com6aH	C07aLo	C07aHi	6
21	C01aLo	C01aHi	Com6aL	C06aLo	C06aHi	6
20	C05bLo	C05bHi	1W5aR	C10bLo	C10bHi	5
19	C04bLo	C04bHi	1W5a	C09bLo	C09bHi	5
18	C03bLo	C03bHi	Com5bHR	C08bLo	C08bHi	5
17	C02bLo	C02bHi	Com5bLR	C07bLo	C07bHi	5
16	C01bLo	C01bHi	Com5aHR	C06bLo	C06bHi	5
15	C05aLo	C05aHi	Com5aLR	C10aLo	C10aHi	5
14	C04aLo	C04aHi	Com5bH	C09aLo	C09aHi	5
13	C03aLo	C03aHi	Com5bL	C08aLo	C08aHi	5
12	C02aLo	C02aHi	Com5aH	C07aLo	C07aHi	5
11	C01aLo	C01aHi	Com5aL	C06aLo	C06aHi	5
10	C05bLo	C05bHi	1W4aR	C10bLo	C10bHi	4
9	C04bLo	C04bHi	1W4a	C09bLo	C09bHi	4
8	C03bLo	C03bHi	Com4bHR	C08bLo	C08bHi	4
7	C02bLo	C02bHi	Com4bLR	C07bLo	C07bHi	4
6	C01bLo	C01bHi	Com4aHR	C06bLo	C06bHi	4
5	C05aLo	C05aHi	Com4aLR	C10aLo	C10aHi	4
4	C04aLo	C04aHi	Com4bH	C09aLo	C09aHi	4
3	C03aLo	C03aHi	Com4bL	C08aLo	C08aHi	4
2	C02aLo	C02aHi	Com4aH	C07aLo	C07aHi	4
1	C01aLo	C01aHi	Com4aL	C06aLo	C06aHi	4

TABLE 2-5: SM4330A UPPER CONNECTOR PINOUT

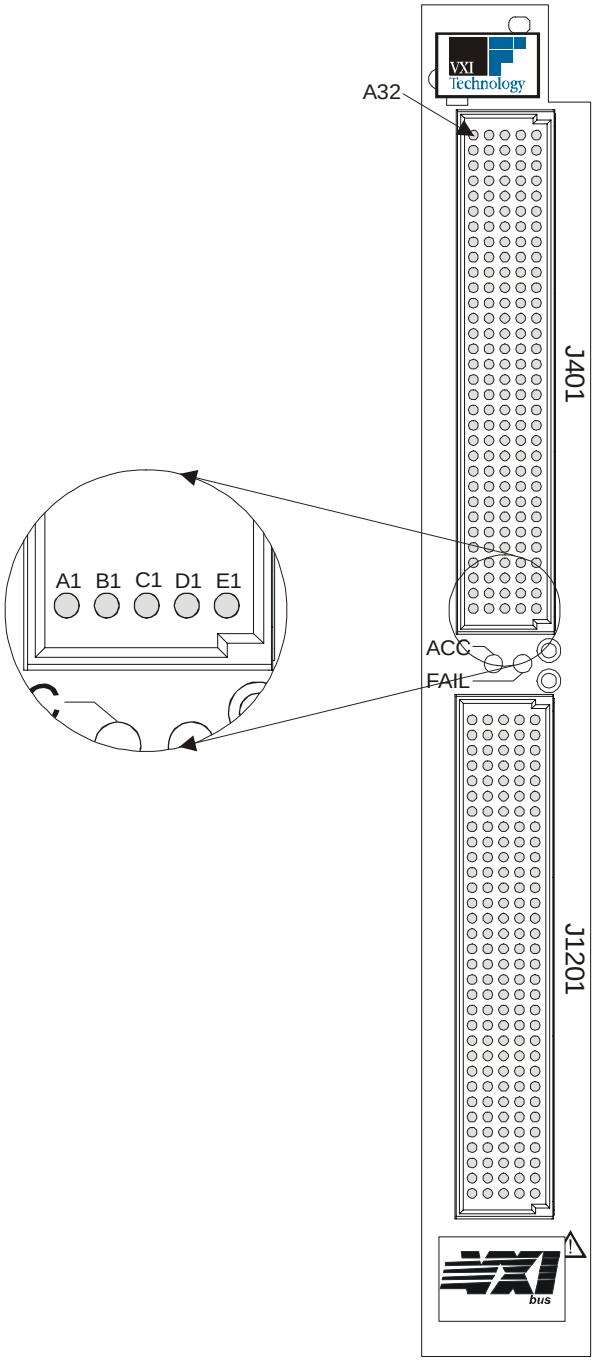
FOUR WIRE MODE, LOWER CONNECTOR

SM4330A Lower Connector (J1201) Pinout

Pin	a	b	c	d	e	Sect.
32	Enc_1b	GND	Enc_2b	GND	Enc_3b	1,2,3
31	Enc_1a	GND	Enc_2a	GND	Enc_3a	1,2,3
30	C05bLo	C05bHi	1W3aR	C10bLo	C10bHi	3
29	C04bLo	C04bHi	1W3a	C09bLo	C09bHi	3
28	C03bLo	C03bHi	Com3bHR	C08bLo	C08bHi	3
27	C02bLo	C02bHi	Com3bLR	C07bLo	C07bHi	3
26	C01bLo	C01bHi	Com3aHR	C06bLo	C06bHi	3
25	C05aLo	C05aHi	Com3aLR	C10aLo	C10aHi	3
24	C04aLo	C04aHi	Com3bH	C09aLo	C09aHi	3
23	C03aLo	C03aHi	Com3bL	C08aLo	C08aHi	3
22	C02aLo	C02aHi	Com3aH	C07aLo	C07aHi	3
21	C01aLo	C01aHi	Com3aL	C06aLo	C06aHi	3
20	C05bLo	C05bHi	1W2aR	C10bLo	C10bHi	2
19	C04bLo	C04bHi	1W2a	C09bLo	C09bHi	2
18	C03bLo	C03bHi	Com2bHR	C08bLo	C08bHi	2
17	C02bLo	C02bHi	Com2bLR	C07bLo	C07bHi	2
16	C01bLo	C01bHi	Com2aHR	C06bLo	C06bHi	2
15	C05aLo	C05aHi	Com2aLR	C10aLo	C10aHi	2
14	C04aLo	C04aHi	Com2bH	C09aLo	C09aHi	2
13	C03aLo	C03aHi	Com2bL	C08aLo	C08aHi	2
12	C02aLo	C02aHi	Com2aH	C07aLo	C07aHi	2
11	C01aLo	C01aHi	Com2aL	C06aLo	C06aHi	2
10	C05bLo	C05bHi	1W1aR	C10bLo	C10bHi	1
9	C04bLo	C04bHi	1W1a	C09bLo	C09bHi	1
8	C03bLo	C03bHi	Com1bHR	C08bLo	C08bHi	1
7	C02bLo	C02bHi	Com1bLR	C07bLo	C07bHi	1
6	C01bLo	C01bHi	Com1aHR	C06bLo	C06bHi	1
5	C05aLo	C05aHi	Com1aLR	C10aLo	C10aHi	1
4	C04aLo	C04aHi	Com1bH	C09aLo	C09aHi	1
3	C03aLo	C03aHi	Com1bL	C08aLo	C08aHi	1
2	C02aLo	C02aHi	Com1aH	C07aLo	C07aHi	1
1	C01aLo	C01aHi	Com1aL	C06aLo	C06aHi	1

TABLE 2-6: SM4330A LOWER CONNECTOR PINOUT

FIGURE 2-1: SM4330A PINOUT REFERENCE (FRONT PANEL DIAGRAM)



VXI*PLUG&PLAY* COMMON FUNCTION CALLS

Background

The VX4330 is part of the SurePath family of switch cards. As such, a SurePath controller card is required to communicate to this device. The SurePath controller card is installed in either the left-most switch card of a SurePath switching system or in a VX4101 MultiPaq instrument.

If the SurePath controller card is installed in a SurePath family switch, all calls made to a SurePath switch card are made through *tkvx43x0_32.dll*. If the SurePath controller is installed in a VX4101 MultiPaq device, then all function calls to a SurePath switch are made through the *tkmpscan_32.dll*. An example is shown below:

1. tkvx43x0_closeRelayVX4330 (id, "M1", 1, 5);

2. tkmpscan_closeRelayVX4330 (id, "M1", 1, 5);

Both function calls perform identical operations, in this case closing relay number 5 in Section 1 on module M1, however, the first one is called if the VX4330 is part of a SurePath system where the controller card is installed in another switch card and the second one is called if the controller card is installed in a VX4101 MultiPaq device.

Rehosting

To replace obsolete components typically requires a great deal of software effort because there are often many test program sets that need to be changed. VXI Technology has greatly simplified this task by developing a translation driver set for the SurePath family. The translation driver takes Tektronix function calls, such as in the example above and converts them to SMIP *II* calls. The result is that any code written to operate with the VX4330 can be used, without modification, when an SM4330A is installed in its place. It is important to note that to use the translation driver, all cards that were part of the SurePath system must be replaced by equivalent SMIP *II* modules (i.e. Tektronix VXI switch cards and VTI switch cards cannot be in the same chassis when using the translation driver set).

All commonly used functions are supported in the translation driver set. For those functions not supported, VTI includes the translation driver source code for custom modification or will add the functions by request. A list of all *tkvx43x0* functions related to the VX4330 supported in the translation driver set are listed in the following table. For *tkmpscan* supported functions, please refer to Section 7.4c, VX4101 SurePath Controller.

TABLE 2-7: TKVX43X0_32.DLL: SM4330 TRANSLATION DRIVER SET, SUPPORTED FUNCTIONS

Class or Window		Function
Initialize		tkvx43x0_init
Auto Initialize		tkvx43x0_autoConnectToFirst
Auto Initialize		tkvx43x0_autoConnectToSlot
Auto Initialize		tkvx43x0_autoConnectToLA
Auto Initialize		tkvx43x0_autoConnectToAll
Daughter Board		tkvx43x0_ID_slaveModules
Daughter Board		tkvx43x0_catalogModules
Daughter Board		tkvx43x0_moduleNames
Daughter Board		tkvx43x0_TTL_triggers
Daughter Board		tkvx43x0_status
Daughter Board	Querys	tkvx43x0_queryModuleNumber
Daughter Board	Querys	tkvx43x0_queryTTL_triggers
Daughter Board	Querys	tkvx43x0_queryStatusOperation
TKVX4330	Configure	tkvx43x0_configureScanner
TKVX4330	Configure	tkvx43x0_disjoinScanners
TKVX4330	Configure	tkvx43x0_joinScanners
TKVX4330	Configure	tkvx43x0_scannerMuxMode
TKVX4330	Configure	tkvx43x0_closeRelayVX4330
TKVX4330	Configure	tkvx43x0_closeRelayList
TKVX4330	Configure	tkvx43x0_openRelayVX4330
TKVX4330	Configure	tkvx43x0_openRelayList
TKVX4330	Configure	tkvx43x0_queryRelayVX4330
TKVX4330	Configure	tkvx43x0_openAll
TKVX4330	Scan	tkvx43x0_scan
TKVX4330	Scan	tkvx43x0_abort
TKVX4330	Scan	tkvx43x0_triggerStatusSetting
TKVX4330	Scan	tkvx43x0_triggerSetup
TKVX4330	Scan	tkvx43x0_trigger
TKVX4330	Relay Delay	tkvx43x0_closeDelay
TKVX4330	Relay Delay	tkvx43x0_openDelay
Utility	Error Handling	tkvx43x0_error_message
Utility	Error Handling	tkvx43x0_error_query
Utility		tkvx43x0_reset
Utility		tkvx43x0_self_test
Utility		tkvx43x0_revision_query
Utility		tkvx43x0_getSlotList
Utility		tkvx43x0_getSlotandLAList
Utility		tkvx43x0_getSlotNumber
Utility		tkvx43x0_getInstrDesc
Utility		tkvx43x0_getSlotandLAList
Utility		tkvx43x0_getManufacturerID
Utility		tkvx43x0_getModelCode
Utility		tkvx43x0_getVisaRev
Utility		tkvx43x0_sleep
Close		tkvx43x0_close

Exceptions

1.) tkvx43x0_powerFailure is not supported. If called, this function will return an error. The SM4330A uses non-latching relays and all relays will return to their default state if power is removed from the chassis.

SECTION 3

VX4350 TO SM4350A: SPST, 10 A/16 A: 64 SPDT RELAY MODULE, 2 A 220 V

SPECIFICATION COMPARISONS

GENERAL SPECIFICATIONS	Tektronix VX4350	VXI Technology SM4350A
MODEL TYPE	General Purpose Switching	General Purpose Switching
CONFIGURATION	64 SPDT (Form C) relays	64 SPDT (Form C) relays
INTERFACE TYPE	Message Based, SCPI, IEEE 488.2	Register Based
VXI REVISION LEVEL	1.4	1.4
INSTRUMENT DRIVERS	WIN framework (Rev. 4.0) WIN95 framework (Rev. 4.0) WINNT framework (Rev. 4.0)	 WIN95 framework (Rev. 4.0) WINNT framework (Rev. 4.0)
RATED SWITCH OPERATIONS **Mechanical** **Electrical**	 1×10^8 1×10^5 (Full Load)	 1×10^7 1×10^5 (Full Load)
MODULE SIZE	Single-wide, C-size	Single-wide, C-size
POWER SPECIFICATIONS		
MAXIMUM SWITCHING VOLTAGE	250 V dc/V ac rms	300 V dc/V ac rms
MAXIMUM SWITCHING CURRENT	< 30 V dc, 2 A / channel	2 A / channel
MAXIMUM SWITCHING POWER **DC** **AC**	 60 W / channel 125 VA / channel	 60 W / channel 125 VA / channel
DC PERFORMANCE		
PATH RESISTANCE	< 1.5 Ω	< 1.5 Ω
INSULATION RESISTANCE	> 1×10^7 Ω	> 1×10^9 Ω
AC PERFORMANCE		
BANDWIDTH (-3 dB)	> 10 MHz	> 50 MHz
ISOLATION **100 kHz** **1 MHz**	 < -50 dB < -25 dB	 < -50 dB < -45 dB
CROSSTALK **100 kHz** **1 MHz** **10 MHz**	 < -65 dB < -45 dB < -25 dB	 < -80 dB < -60 dB < -40 dB

INTERFACING TO THE MODULE

The SM4350A has two, 96-pin high density DIN connectors on its front panel for I/O interfacing. Mating connector and pin part numbers are referenced below. These parts can be ordered directly from VXI Technology or the manufacturer listed in the table.

ACCESSORIES			
70-0247-000: Connector Kit (Includes Two 96 Pin Connectors, Two Backshells and One Box of 200 Crimp Pins)			
Desc: Connector Kit	Mfgr.: VXI Tech.	Mfgr P/N: 52-0247-000	Contact Info: 949-955-1VXI/www.vxitech.com
Desc: Connector	Mfgr.: AMP	Mfgr P/N: 925 486-1	Contact Info: 800-522-6752/www.amp.com
Desc: Backshell	Mfgr.: AMP	Mfgr P/N: 826196-1	Contact Info: 800-522-6752/www.amp.com
Desc: Crimp Pins	Mfgr.: AMP	Mfgr P/N: 166722-1	Contact Info: 800-522-6752/www.amp.com
27-0228-096: 96-Pin DIN Connector			
Desc: Connector	Mfgr.: AMP	Mfgr P/N: 925 486-1	Contact Info: 800-522-6752/www.amp.com
27-0229-000: Backshell			
Desc: Backshell	Mfgr.: AMP	Mfgr P/N: 826196-1	Contact Info: 800-522-6752/www.amp.com
27-0233-200: Crimp Pins (200 Pin Box)			
Desc: Crimp Pins	Mfgr.: AMP	Mfgr P/N: 166722-1	Contact Info: 800-522-6752/www.amp.com

The SM4350A is designed to provide a pin-to-pin replica of the Tektronix VX4350. This eases the burden of integrating the SM4330A into preexisting test fixtures and makes re-cabling unnecessary. Translation drivers are provided to make the software transition seamless, enabling the VTI units to use the previously installed Tektronix driver calls. This ensures that any application code written using the Tektronix *plug&play* drivers need not be modified.

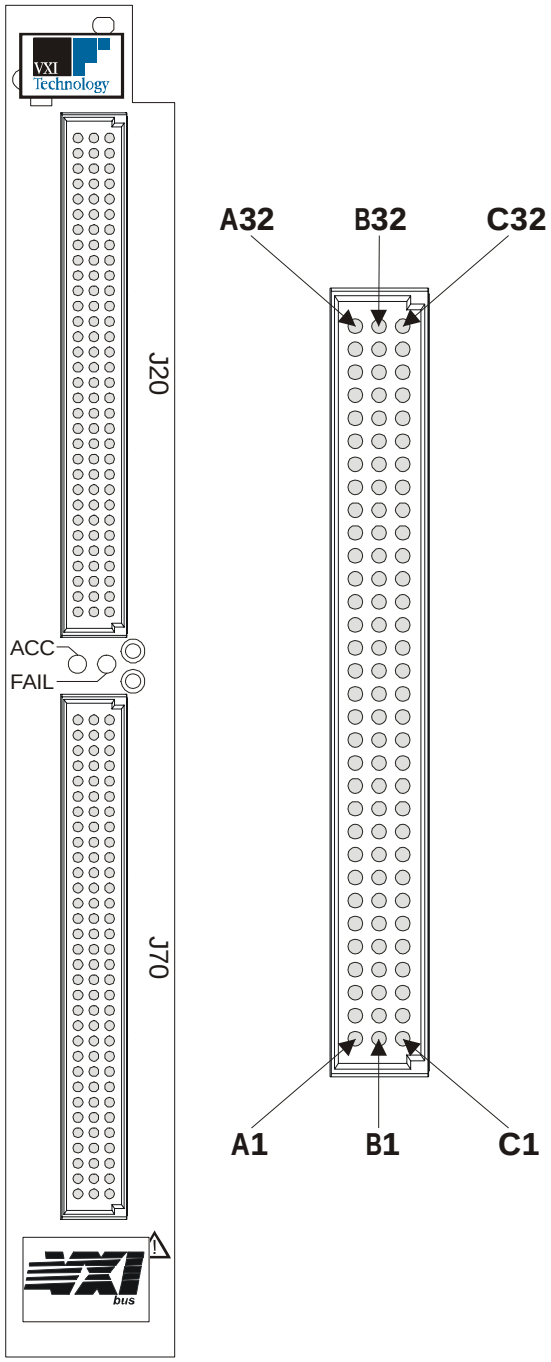
TABLE 3-1: SM4350A PIN-TO-PIN REPLACEMENT FOR VX4350

CONNECTOR J20					
ROW A	**SIGNAL**	**ROW B**	**SIGNAL**	**ROW C**	**SIGNAL**
1	C33-NC	1	C33-COM	1	C33-NO
2	C34-NC	2	C34-COM	2	C34-NO
3	C35-NC	3	C35-COM	3	C35-NO
4	C36-NC	4	C36-COM	4	C36-NO
5	C37-NC	5	C37-COM	5	C37-NO
6	C38-NC	6	C38-COM	6	C38-NO
7	C39-NC	7	C39-COM	7	C39-NO
8	C40-NC	8	C40-COM	8	C40-NO
9	C41-NC	9	C41-COM	9	C41-NO
10	C42-NC	10	C42-COM	10	C42-NO
11	C43-NC	11	C43-COM	11	C43-NO
12	C44-NC	12	C44-COM	12	C44-NO
13	C45-NC	13	C45-COM	13	C45-NO
14	C46-NC	14	C46-COM	14	C46-NO
15	C47-NC	15	C47-COM	15	C47-NO
16	C48-NC	16	C48-COM	16	C48-NO
17	C49-NC	17	C49-COM	17	C49-NO
18	C50-NC	18	C50-COM	18	C50-NO
19	C51-NC	19	C51-COM	19	C51-NO
20	C52-NC	20	C52-COM	20	C52-NO
21	C53-NC	21	C53-COM	21	C53-NO
22	C54-NC	22	C54-COM	22	C54-NO
23	C55-NC	23	C55-COM	23	C55-NO
24	C56-NC	24	C56-COM	24	C56-NO
25	C57-NC	25	C57-COM	25	C57-NO
26	C58-NC	26	C58-COM	26	C58-NO
27	C59-NC	27	C59-COM	27	C59-NO
28	C60-NC	28	C60-COM	28	C60-NO
29	C61-NC	29	C61-COM	29	C61-NO
30	C62-NC	30	C62-COM	30	C62-NO
31	C63-NC	31	C63-COM	31	C63-NO
32	C64-NC	32	C64-COM	32	C64-NO

TABLE 3-2: SM4350A PIN-TO-PIN REPLACEMENT FOR VX4350

CONNECTOR J70					
ROW A	**SIGNAL**	**ROW B**	**SIGNAL**	**ROW C**	**SIGNAL**
1	C1-NC	1	C1-COM	1	C1-NO
2	C2-NC	2	C2-COM	2	C2-NO
3	C3-NC	3	C3-COM	3	C3-NO
4	C4-NC	4	C4-COM	4	C4-NO
5	C5-NC	5	C5-COM	5	C5-NO
6	C6-NC	6	C6-COM	6	C6-NO
7	C7-NC	7	C7-COM	7	C7-NO
8	C8-NC	8	C8-COM	8	C8-NO
9	C9-NC	9	C9-COM	9	C9-NO
10	C10-NC	10	C10-COM	10	C10-NO
11	C11-NC	11	C11-COM	11	C11-NO
12	C12-NC	12	C12-COM	12	C12-NO
13	C13-NC	13	C13-COM	13	C13-NO
14	C14-NC	14	C14-COM	14	C14-NO
15	C15-NC	15	C15-COM	15	C15-NO
16	C16-NC	16	C16-COM	16	C16-NO
17	C17-NC	17	C17-COM	17	C17-NO
18	C18-NC	18	C18-COM	18	C18-NO
19	C19-NC	19	C19-COM	19	C19-NO
20	C20-NC	20	C20-COM	20	C20-NO
21	C21-NC	21	C21-COM	21	C21-NO
22	C22-NC	22	C22-COM	22	C22-NO
23	C23-NC	23	C23-COM	23	C23-NO
24	C24-NC	24	C24-COM	24	C24-NO
25	C25-NC	25	C25-COM	25	C25-NO
26	C26-NC	26	C26-COM	26	C26-NO
27	C27-NC	27	C27-COM	27	C27-NO
28	C28-NC	28	C28-COM	28	C28-NO
29	C29-NC	29	C29-COM	29	C29-NO
30	C30-NC	30	C30-COM	30	C30-NO
31	C31-NC	31	C31-COM	31	C31-NO
32	C32-NC	32	C32-COM	32	C32-NO

FIGURE 3-1: SM4350A PINOUT REFERENCE (FRONT PANEL DIAGRAM)



VXI*PLUG&PLAY* COMMON FUNCTION CALLS

Background

The VX4350 is part of the SurePath family of switch cards. As such, a SurePath controller card is required to communicate to this device. The SurePath controller card is installed in either the left-most switch card of a SurePath switching system or in a VX4101 MultiPaq instrument.

If the SurePath controller card is installed in a SurePath family switch, all calls made to a SurePath switch card are made through *tkvx43x0_32.dll*. If the SurePath controller is installed in a VX4101 MultiPaq device, then all function calls to a SurePath switch are made through the *tkmpscan_32.dll*. An example is shown below:

1. tkvx43x0_closeRelayVX4350 (id, "M1", 4);

2. tkmpscan_closeRelayVX4350 (id, "M1", 4);

Both function calls perform identical operations, in this case closing relay number 4 on module M1, however, the first one is called if the VX4350 is part of a SurePath system where the controller card is installed in another switch card and the second one is called if the controller card is installed in a VX4101 MultiPaq device.

Rehosting

To replace obsolete components typically requires a great deal of software effort because there are often many test program sets that need to be changed. VXI Technology has greatly simplified this task by developing a translation driver set for the SurePath family. The translation driver takes Tektronix function calls, such as in the example above and converts them to SMIP *II* calls. The result is that any code written to operate with the VX4350 can be used, without modification, when an SM4350A is installed in its place. It is important to note that to use the translation driver, all cards that were part of the SurePath system must be replaced by equivalent SMIP *II* modules (i.e. Tektronix VXI switch cards and VTI switch cards cannot be in the same chassis when using the translation driver set).

All commonly used functions are supported in the translation driver set. For those functions not supported, VTI includes the translation driver source code for custom modification or will add the functions by request. A list of all *tkvx43x0* functions related to the VX4350 supported in the translation driver set are listed in the following table. For *tkmpscan* supported functions, please refer to Section 7.4c, VX4101 SurePath Controller.

TABLE 3-3: TKVX43X0_32.DLL: SM4350 TRANSLATION DRIVER SET, SUPPORTED FUNCTIONS

Class or Window		Function
Initialize		tkvx43x0_init
Auto Initialize		tkvx43x0_autoConnectToFirst
Auto Initialize		tkvx43x0_autoConnectToSlot
Auto Initialize		tkvx43x0_autoConnectToLA
Auto Initialize		tkvx43x0_autoConnectToAll
Daughter Board		tkvx43x0_ID_slaveModules
Daughter Board		tkvx43x0_catalogModules
Daughter Board		tkvx43x0_moduleNames
Daughter Board		tkvx43x0_TTL_triggers
Daughter Board		tkvx43x0_status
Daughter Board	Querys	tkvx43x0_queryModuleNumber
Daughter Board	Querys	tkvx43x0_queryTTL_triggers
Daughter Board	Querys	tkvx43x0_queryStatusOperation
TKVX4350	Configure	tkvx43x0_closeRelayVX4350
TKVX4350	Configure	tkvx43x0_closeRelayList
TKVX4350	Configure	tkvx43x0_openRelayVX4350
TKVX4350	Configure	tkvx43x0_openRelayList
TKVX4350	Configure	tkvx43x0_queryRelayVX4350
TKVX4350	Configure	tkvx43x0_openAll
TKVX4350	Scan	tkvx43x0_scan
TKVX4350	Scan	tkvx43x0_abort
TKVX4350	Scan	tkvx43x0_triggerStatusSetting
TKVX4350	Scan	tkvx43x0_triggerSetup
TKVX4350	Scan	tkvx43x0_trigger
TKVX4350	Relay Delay	tkvx43x0_closeDelay
TKVX4350	Relay Delay	tkvx43x0_openDelay
Utility	Error Handling	tkvx43x0_error_message
Utility	Error Handling	tkvx43x0_error_query
Utility		tkvx43x0_reset
Utility		tkvx43x0_self_test
Utility		tkvx43x0_revision_query
Utility		tkvx43x0_getSlotList
Utility		tkvx43x0_getSlotandLAList
Utility		tkvx43x0_getSlotNumber
Utility		tkvx43x0_getInstrDesc
Utility		tkvx43x0_getSlotandLAList
Utility		tkvx43x0_getManufacturerID
Utility		tkvx43x0_getModelCode
Utility		tkvx43x0_getVisaRev
Utility		tkvx43x0_sleep
Close		tkvx43x0_close

Exceptions

1.) tkvx43x0_powerFailure – This function is not supported and if called, will return an error. The SM4350 uses non-latching relays. Upon removal of power, all relays will open to their reset state.

SECTION 4

VX4351 TO SM4351A: SPST, 10 A/16 A

SPECIFICATION COMPARISONS

GENERAL SPECIFICATIONS	Tektronix VX4351	VXI Technology SM4351A
MODEL TYPE	Power Switching	Power Switching
CONFIGURATION	40 SPST Form A Relays	40 SPST Form A Relays
INTERFACE TYPE	Message Based, SCPI, IEEE 488.2	Register Based
VXI REVISION LEVEL	1.4	1.4
INSTRUMENT DRIVERS	WIN framework (Rev. 4.0) WIN95 framework (Rev. 4.0) WINNT framework (Rev. 4.0)	 WIN95 framework (Rev. 4.0) WINNT framework (Rev. 4.0)
RATED SWITCH OPERATIONS		
Mechanical	Not Available	5×10^7
Electrical	1×10^5 (Full Load)	1×10^5 (Full Load)
MODULE SIZE	Single-wide, C-size	Single-wide, C-size
POWER SPECIFICATIONS		
MAXIMUM SWITCHING VOLTAGE	250 V dc/V ac rms	125 V dc, 250 V ac
MAXIMUM SWITCHING CURRENT	10 A / channel	16 A / channel
MAXIMUM SWITCHING POWER		
DC	300 W / channel	300 W / channel
AC	2500 VA / channel	2000 VA / channel
DC PERFORMANCE		
PATH RESISTANCE	< 0.1 Ω	< 0.1 Ω
INSULATION RESISTANCE	$> 1 \times 10^7$ Ω	$> 1 \times 10^9$ Ω
AC PERFORMANCE		
BANDWIDTH (-3 dB)	Not Available	> 20 MHz
CROSSTALK		
100 kHz	Not Available	< -75 dB
1 MHz	Not Available	< -50 dB
10 MHz	Not Available	< -40 dB

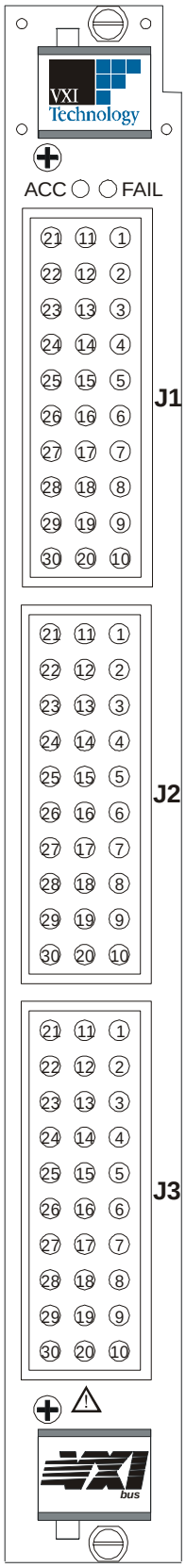
INTERFACING TO THE MODULE

The SM4351A has three, high density 30-pin connectors on its front panel for I/O interfacing. Mating connector and pin part numbers are referenced below. These parts can be ordered directly from VXI Technology or the manufacturer listed in the table.

ACCESSORIES			
70-0248-000: Connector Kit (Includes Three Connectors, Three Backshells and 90 Crimp Pins)			
Desc: Connector Kit	Mfgr.: VXI Tech.	Mfgr P/N: 70-0248-000	Contact Info: 949-955-1VXI/www.vxitech.com
Desc: Connector & Backshell	Mfgr.: Positronics	Mfgr P/N: PLC30F0050	Contact Info: 800-641-4054/www.positronic.com
Desc: Crimp Pins	Mfgr.: Positronics	Mfgr P/N: FC114N2	Contact Info: 800-641-4054/www.positronic.com
27-0227-030: 30-Pin Connector with Backshell			
Desc: Connector & Backshell	Mfgr.: Positronics	Mfgr P/N: PLC30F0050	Contact Info: 800-641-4054/www.positronic.com
27-0087-000: Crimp Pins (90 Pin Box)			
Desc: Crimp Pins	Mfgr.: Positronics	Mfgr P/N: FC114N2	Contact Info: 800-641-4054/www.positronic.com

The SM4351A is designed to provide a pin-to-pin replica of the Tektronix VX4351. This eases the burden of integrating the SM4351A into preexisting test fixtures and makes re-cabling unnecessary. Translation drivers are provided to make the software transition seamless, enabling the VTI units to use the previously installed Tektronix driver calls. This ensures that any application code written using the Tektronix *plug&play* drivers need not be modified.

FIGURE 4-1: PINOUT DIAGRAM & TABLE FOR SM4351A



SM4351A	
SIGNAL	**PINS**
K1	J1.1, J1.2
K2	J1.3, J1.4
K3	J1.5, J1.6
K4	J1.7, J1.8
K5	J1.9, J1.10
K6	J1.11, J1.12
K7	J1.13, J1.14
K8	J1.15, J1.16
K9	J1.17, J1.18
K10	J1.19, J1.20
K11	J1.21, J1.22
K12	J1.23, J1.24
K13	J1.25, J1.26
K14	J1.27, J1.28
K15	J2.1, J2.2
K16	J2.3, J2.4
K17	J2.5, J2.6
K18	J2.7, J2.8
K19	J2.9, J2.10
K20	J2.11, J2.12
K21	J2.13, J2.14
K22	J2.15, J2.16
K23	J2.17, J2.18
K24	J2.19, J2.20
K25	J2.21, J2.22
K26	J2.23, J2.24
K27	J3.1, J3.2
K28	J3.3, J3.4
K29	J3.5, J3.6
K30	J3.7, J3.8
K31	J3.9, J3.10
K32	J3.11, J3.12
K33	J3.13, J3.14
K34	J3.15, J3.16
K35	J3.17, J3.18
K36	J3.19, J3.20
K37	J3.21, J3.22
K38	J3.23, J3.24
K39	J3.25, J3.26
K40	J3.27, J3.28

VXI*PLUG&PLAY* COMMON FUNCTION CALLS

Background

Being part of the SurePath family of switch cards, the VX4351 requires a controller card to communicate with this device. The SurePath controller card is installed in either the left-most switch card of a SurePath switching system or in a VX4101 MultiPaq instrument.

If the SurePath controller card is installed in a SurePath family switch, all calls made to a SurePath switch card are made through *tkvx43x0_32.dll*. If the SurePath controller is installed in a VX4101 MultiPaq device, then all function calls to a SurePath switch are made through the *tkmpscan_32.DLL*. An example is shown below:

1. tkvx43x0_closeRelayVX4351 (id, "M1", 4);

2. tkmpscan_closeRelayVX4351 (id, "M1", 4);

Both function calls perform identical operations, in this case closing relay number 4 on module M1, however, the first one is called if the VX4351 is part of a SurePath system where the controller card is installed in another switch card and the second one is called if the controller card is installed in a VX4101 MultiPaq device.

Rehosting

To replace obsolete components typically requires a great deal of software effort because there are often many test program sets that need to be changed. VXI Technology has greatly simplified this task by developing a translation driver set for the SurePath family. The translation driver takes Tektronix function calls, such as in the example above and converts them to SMIP *II* calls. The result is that any code written to operate with the VX4351 can be used, without modification, when an SM4351A is installed in its place. It is important to note that to use the translation driver, all cards that were part of the SurePath system must be replaced by equivalent SMIP *II* modules (i.e. Tektronix VXI switch cards and VTI switch cards cannot be in the same chassis when using the translation driver set).

All commonly used functions are supported in the translation driver set. For those functions not supported, VTI includes the translation driver source code for custom modification or will add the functions by request. A list of all *tkvx43x0* functions related to the VX4351 supported in the translation driver set are listed in the following table. For *tkmpscan* supported functions, please refer to Section 7.4c, VX4101 SurePath Controller.

TABLE 4-1: TKVX43X0_32.DLL: SM4351A TRANSLATION DRIVER SET, SUPPORTED FUNCTIONS

Class or Window		Function
Initialize		tkvx43x0_init
Auto Initialize		tkvx43x0_autoConnectToFirst
Auto Initialize		tkvx43x0_autoConnectToSlot
Auto Initialize		tkvx43x0_autoConnectToLA
Auto Initialize		tkvx43x0_autoConnectToAll
Daughter Board		tkvx43x0_ID_slaveModules
Daughter Board		tkvx43x0_catalogModules
Daughter Board		tkvx43x0_moduleNames
Daughter Board		tkvx43x0_TTL_triggers
Daughter Board		tkvx43x0_status
Daughter Board	Querys	tkvx43x0_queryModuleNumber
Daughter Board	Querys	tkvx43x0_queryTTL_triggers
Daughter Board	Querys	tkvx43x0_queryStatusOperation
TKVX4351	Configure	tkvx43x0_configureModeVX4351
TKVX4351	Configure	tkvx43x0_closeRelayVX4351
TKVX4351	Configure	tkvx43x0_closeRelayList
TKVX4351	Configure	tkvx43x0_openRelayVX4351
TKVX4351	Configure	tkvx43x0_openRelayList
TKVX4351	Configure	tkvx43x0_queryRelayVX4351
TKVX4351	Configure	tkvx43x0_openAll
TKVX4351	Relay Delay	tkvx43x0_closeDelay
TKVX4351	Relay Delay	tkvx43x0_openDelay
Utility	Error Handling	tkvx43x0_error_message
Utility	Error Handling	tkvx43x0_error_query
Utility		tkvx43x0_reset
Utility		tkvx43x0_self_test
Utility		tkvx43x0_revision_query
Utility		tkvx43x0_getSlotList
Utility		tkvx43x0_getSlotandLAList
Utility		tkvx43x0_getSlotNumber
Utility		tkvx43x0_getInstrDesc
Utility		tkvx43x0_getSlotandLAList
Utility		tkvx43x0_getManufacturerID
Utility		tkvx43x0_getModelCode
Utility		tkvx43x0_getVisaRev
Utility		tkvx43x0_sleep
Close		tkvx43x0_close

Exceptions

1.) The application function 'tkvx43x0_measOperateVX4351Test' is not supported.

SECTION 5

VX4357 TO SM4357A: SPDT, 5 A

SPECIFICATION COMPARISONS

GENERAL SPECIFICATIONS	Tektronix VX4357	VXI Technology SM4357A
MODEL TYPE	General Purpose Switching	General Purpose Switching
CONFIGURATION	32 SPDT (Form C) relays	32 SPDT (Form C) relays
INTERFACE TYPE	Message Based, SCPI, IEEE 488.2	Register Based
VXI REVISION LEVEL	1.4	1.4
INSTRUMENT DRIVERS	WIN framework (Rev. 4.0) WIN95 framework (Rev. 4.0) WINNT framework (Rev. 4.0)	 WIN95 framework (Rev. 4.0) WINNT framework (Rev. 4.0)
RATED SWITCH OPERATIONS		
Mechanical	Not Available	1×10^7
Electrical	2×10^5 (Full Load)	5×10^5 (Full Load)
MODULE SIZE	Single-wide, C-size	Single-wide, C-size
POWER SPECIFICATIONS		
MAXIMUM SWITCHING VOLTAGE	48 V dc, 250 V ac rms	110 V dc, 250 V ac rms
MAXIMUM SWITCHING CURRENT	5 A / channel	5 A / channel
MAXIMUM SWITCHING POWER		
DC	90 W / channel	150 W / channel
AC	1000 VA / channel	1250 VA / channel
DC PERFORMANCE		
PATH RESISTANCE	< 0.30 Ω	< 0.15 Ω
INSULATION RESISTANCE	> 1×10^9 Ω	> 1×10^9 Ω
AC PERFORMANCE		
BANDWIDTH (-3 dB)	Not Available	> 50 MHz
CROSSTALK		
100 kHz	Not Available	< -80 dB
1 MHz	Not Available	< -60 dB
10 MHz	Not Available	< -40 dB

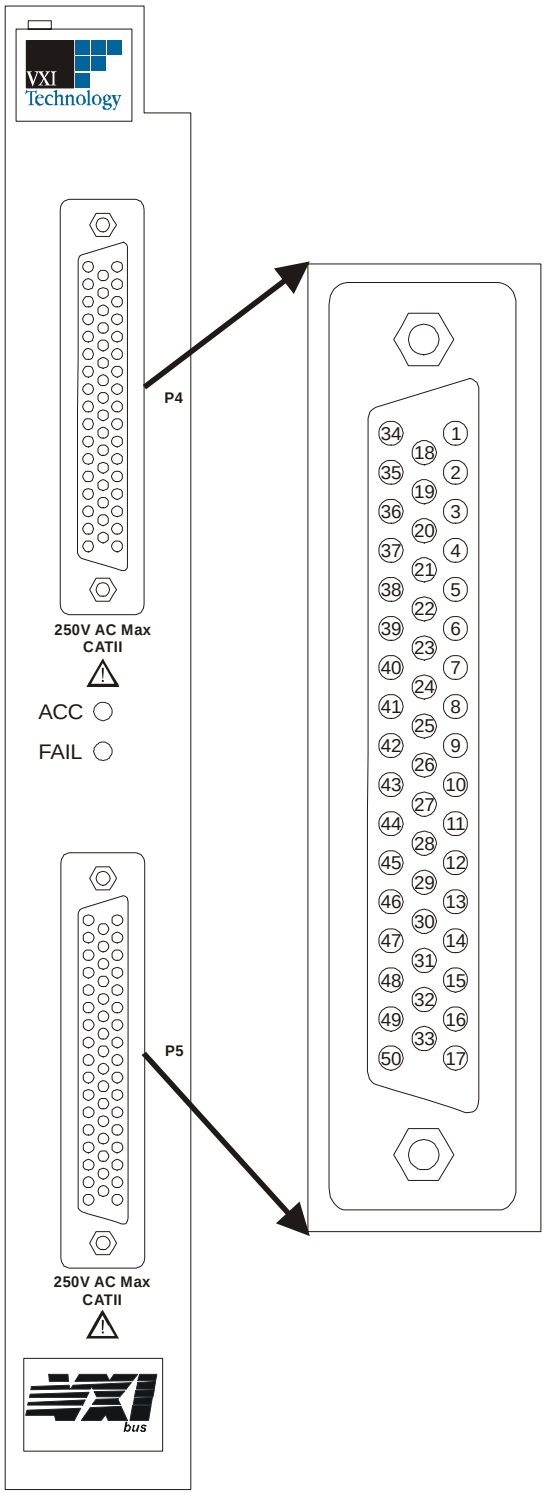
INTERFACING TO THE MODULE

The SM4357A has two, 50-pin high density D-Sub connectors on its front panel for I/O interfacing. Mating connector and pin part numbers are referenced below. These parts can be ordered directly from VXI Technology or the manufacturer listed in the table.

ACCESSORIES			
70-0249-000: Connector Kit (Includes Two Connectors, Two Backshells and 100 Crimp Pins)			
Desc: Connector Kit	Mfgr.: VXI Tech.	Mfgr P/N: 70-0248-000	Contact Info: 949-955-1VXI/www.vxitech.com
Desc: Connector	Mfgr.: AMP	Mfgr P/N: 205211-1	Contact Info: 800-522-6752/www.amp.com
Desc: Backshell, Metal	Mfgr.: AMP	Mfgr P/N: 748676-5	Contact Info: 800-522-6752/www.amp.com
Desc: Crimp Pins	Mfgr.: AMP	Mfgr P/N: 5-66504-7	Contact Info: 800-522-6752/www.amp.com
27-0232-050: 50-Pin D-Sub Connector			
Desc: Connector	Mfgr.: AMP	Mfgr P/N: 205211-1	Contact Info: 800-522-6752/www.amp.com
27-0230-000: Backshell, Metal			
Desc: Backshell, Metal	Mfgr.: AMP	Mfgr P/N: 748676-5	Contact Info: 800-522-6752/www.amp.com
27-0231-000: Crimp Pins (100 Loose Pins)			
Desc: Crimp Pins	Mfgr.: AMP	Mfgr P/N: 5-66504-7	Contact Info: 800-522-6752/www.amp.com

The SM4357A is designed to provide a pin-to-pin replica of the Tektronix VX4357. This eases the burden of integrating the SM4357A into preexisting test fixtures and makes re-cabling unnecessary. Translation drivers are provided to make the software transition seamless, enabling the VTI units to use the previously installed Tektronix driver calls. This ensures that any application code written using the Tektronix *plug&play* drivers need not be modified.

FIGURE 5-1: PINOUT CROSS-REFERENCE DIAGRAM & TABLE VX4357 TO SM4357A



SM4357			
RELAY	NO	WIPER	NC
K0	P4.1	P4.2	P4.34
K1	P4.3	P4.4	P4.36
K2	P4.5	P4.6	P4.38
K3	P4.7	P4.8	P4.40
K4	P4.9	P4.10	P4.42
K5	P4.11	P4.12	P4.44
K6	P4.13	P4.14	P4.46
K7	P4.15	P4.16	P4.48
K8	P4.18	P4.19	P4.35
K9	P4.20	P4.21	P4.37
K10	P4.22	P4.23	P4.39
K11	P4.24	P4.25	P4.41
K12	P4.26	P4.27	P4.43
K13	P4.28	P4.29	P4.45
K14	P4.30	P4.31	P4.47
K15	P4.32	P4.33	P4.49
K16	P5.1	P5.2	P5.34
K17	P5.3	P5.4	P5.36
K18	P5.5	P5.6	P5.38
K19	P5.7	P5.8	P5.40
K20	P5.9	P5.10	P5.42
K21	P5.11	P5.12	P5.44
K22	P5.13	P5.14	P5.46
K23	P5.15	P5.16	P5.48
K24	P5.18	P5.19	P5.35
K25	P5.20	P5.21	P5.37
K26	P5.22	P5.23	P5.39
K27	P5.24	P5.25	P5.41
K28	P5.26	P5.27	P5.43
K29	P5.28	P5.29	P5.45
K30	P5.30	P5.31	P5.47
K31	P5.32	P5.33	P5.49

VXI*PLUG&PLAY* COMMON FUNCTION CALLS

Background

The VX4357 is a Tektronix/CDS legacy card. It is not part of the SurePath family, therefore, its driver is completely independent of the SurePath function calls.

Rehosting

To replace obsolete components typically requires a great deal of software effort because there are often many test program sets that need to be changed. VXI Technology has greatly simplified this task by developing a translation driver set for Tektronix instruments and switches for which there are functionally compatible VTI modules . The translation driver for the VX4357 takes Tektronix function calls, and converts them to SMIP *II* calls. The result is that any code written to operate with the VX4357 can be used, without modification, when an SM4357A is installed in its place.

All commonly used functions are supported in the translation driver set. For those functions not supported, VTI includes the translation driver source code for custom modification or will add unsupported functions to the set by request. A list of all *tkvx4357* functions supported in the translation driver set are listed in the following table.

TABLE 5-1: TKVX4357_32.DLL: SM4357 TRANSLATION DRIVER - SUPPORTED FUNCTIONS

Class or Window		Function
Initialize		tkvx4357_init
Auto Initialize		tkvx4357_autoConnectToFirst
Auto Initialize		tkvx4357_autoConnectToSlot
Auto Initialize		tkvx4357_autoConnectToLA
Auto Initialize		tkvx4357_autoConnectToAll
Route		tkvx4357_setOrReset
Route		tkvx4357_switchRelay
Route		tkvx4357_queryRelay
Route		tkvx4357_delay
Route		tkvx4357_queryDelay
Route		tkvx4357_setRelaySwitches1
Route		tkvx4357_setRelaySwitches2
Route		tkvx4357_setRelaySwitches3
Route		tkvx4357_setRelaySwitches4
Utility	Error Handling	tkvx43x0_error_message
Utility	Error Handling	tkvx43x0_error_query
Utility		tkvx43x0_reset
Utility		tkvx43x0_self_test
Utility		tkvx43x0_revision_query
Utility		tkvx43x0_getSlotList
Utility		tkvx43x0_getSlotandLAList
Utility		tkvx43x0_getSlotNumber
Utility		tkvx43x0_getInstrDesc
Utility		tkvx43x0_getSlotandLAList
Utility		tkvx43x0_getManufacturerID
Utility		tkvx43x0_getModelCode
Utility		tkvx43x0_getVisaRev
Utility		tkvx43x0_sleep
Close		tkvx43x0_close

Exceptions

None

SECTION 6

VX4350 TO SM4350: SPST, 10 A/16 A: 64 SPDT RELAY MODULE, 2 A 220 V

SPECIFICATION COMPARISONS

Note The information provided in this section is specific to the ***SM4350***. The ***SM4350A*** provides a *pin-to-pin replica* of the Tektronix VM4350 and is presented in ***Section 3***.

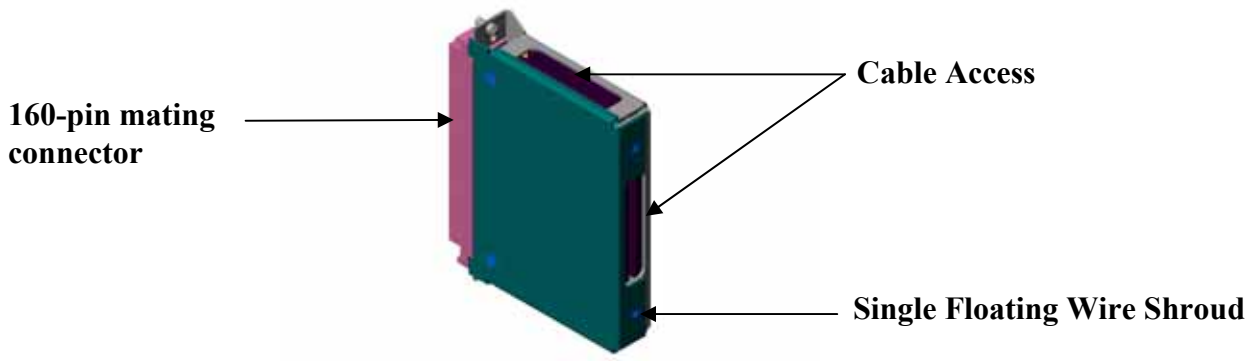
GENERAL SPECIFICATIONS	Tektronix VX4350	VXI Technology SM4350
MODEL TYPE	General Purpose	General Purpose
CONFIGURATION	64 SPDT (Form C) Relays	64 SPDT (Form C) Relays
INTERFACE TYPE	Message Based, SCPI, IEEE 488.2	Register Based
VXI REVISION LEVEL	1.4	1.4
INSTRUMENT DRIVERS	WIN framework (Rev. 4.0) WIN95 framework (Rev. 4.0) WINNT framework (Rev. 4.0)	 WIN95 framework (Rev. 4.0) WINNT framework (Rev. 4.0)
RATED SWITCH OPERATIONS **Mechanical** **Electrical**	 1×10^8 1×10^5 (Full Load)	 5×10^7 5×10^5 (Full Load)
MODULE SIZE	Single-wide, C-size	Single-wide, C-size
POWER SPECIFICATIONS		
MAXIMUM SWITCHING VOLTAGE	250 V dc, 250 V ac rms	300 V dc, 300 V ac
MAXIMUM SWITCHING CURRENT	< 30 V, 2 A / channel	< 30 V, 2 A / channel
MAXIMUM SWITCHING POWER **DC** **AC**	 60 W / channel 125 VA / channel	 60 W / channel 125 VA / channel
DC PERFORMANCE		
PATH RESISTANCE	< 1.5 Ω	< 0.3 Ω
AC PERFORMANCE		
BANDWIDTH (-3 dB)	> 10 MHz	> 50 MHz
ISOLATION **100 kHz** **1 MHz**	 < -50 dB < -25 dB	 < -50 dB < -45 dB
CROSSTALK **100 kHz** **1 MHz** **10 MHz**	 < -65 dB < -45 dB < -45 dB	 < -80 dB < -60 dB < -40 dB

INTERFACING TO THE MODULE

The SM4350 has two, 160-pin high density DIN connectors on its front panel for I/O interfacing. Mating connector and pin part numbers are referenced below. These parts can be ordered directly from VXI Technology or the manufacturer listed in the table.

ACCESSORIES			
52-0236-000: Connector Kit (Includes 160 Pin Connector & Retaining Hardware)			
Desc: Connector Kit	Mfgr.: VXI Tech.	Mfgr P/N: 52-0236-000	Contact Info: 949-955-1VXI/www.vxitech.com
Desc: Connector	Mfgr.: ERNI	Mfgr P/N: 024070	Contact Info: 804-530-5012/www.ernicomponents.com
Desc: Retaining Hardware	Mfgr.: VXI Tech.	Mfgr P/N: 41-0298-000	Contact Info: 949-955-1VXI/www.vxitech.com
52-0237-000: Strain Relief Brackets			
Desc: Strain Relief Brackets	Mfgr.: VXI Tech.	Mfgr P/N: 52-0237-000	Contact Info: 949-955-1VXI/www.vxitech.com
52-0110-000: 10-Pin Cable Assembly			
Desc: 6 ft. 24GA Teflon, 10 Crimp Pins	Mfgr.: VXI Tech.	Mfgr P/N: 52-0110-000	Contact Info: 949-955-1VXI/www.vxitech.com
52-0235-000: Floating Wire Shroud (Does Not Include Connector Pins)			
Desc: Floating Wire Shroud	Mfgr.: VXI Tech.	Mfgr P/N: 52-0235-000	Contact Info: 949-955-1VXI/www.vxitech.com
52-0109-001: Crimp Pins (500 per Reel)			
Desc: Crimp Pins	Mfgr.: ERNI	Mfgr P/N: 014729	Contact Info: 804-530-5012/www.ernicomponents.com
52-0109-000: Lose Crimp Pins (100 per Bag)			
Desc: Lose Crimp Pins	Mfgr.: VXI Tech.	Mfgr P/N: 52-0109-000	Contact Info: 949-955-1VXI/www.vxitech.com
46-0010-000: Crimp Tool			
Desc: Crimp Tool	Mfgr.: ERNI	Mfgr P/N: 014374	Contact Info: 804-530-5012/www.ernicomponents.com
46-0011-000: Extraction Tool			
Desc: Extraction Tool	Mfgr.: ERNI	Mfgr P/N: 471555	Contact Info: 804-530-5012/www.ernicomponents.com

The single floating wire shroud assembly is used to provide added strain relief. Refer to figure below.



In many ATE applications, a termination panel for the instrumentation is utilized. This termination panel will have connectors that mate to the UUT or an intermediate test fixture. A termination panel may take the form of an Interconnect Assembly (ICA) made by manufacturers such as Virginia Panel or Macpanel. In either case, it is desirable to maintain the same I/O layout at the panel to avoid costly redesign of test fixturing or UUT cable assemblies.

VXI Technology offers a couple of options that prevent the need for any interface panel to UUT redesign as follows:

- wired funnel assemblies that mate directly to the SM4350 front panel
- custom cabling between SM4350 front panel and ICA/termination panel

For customers who plan on developing their own cabling between the SM4350 and the termination panel, this section provides a cross-reference pinout table between the VX4350 and the SM4350 in Table 6-1 and Table 6-2.

TABLE 6-1: TEKTRONIX VX4350 TO VXI TECHNOLOGY SM4350 PINOUT CROSS-REFERENCE (CONENCTOR J20 TO J100)

TEKTRONIX VX4350 (J20)			PIN	VXI TECHNOLOGY SM4350 (J100)				
a	b	c		a	b	c	d	e
C33-NC	C33-COM	C33-NO	1	C33-COM	C34-COM	C35-COM	C36-COM	C37-COM
C34-NC	C34-COM	C34-NO	2	C33-NO	C34-NO	C35-NO	C36-NO	C37-NO
C35-NC	C35-COM	C35-NO	3	C33-NC	C34-NC	C35-NC	C36-NC	C37-NC
C36-NC	C36-COM	C36-NO	4	C38-COM	C39-COM	C40-COM	C41-COM	C42-COM
C37-NC	C37-COM	C37-NO	5	C38-NO	C39-NO	C40-NO	C41-NO	C42-NO
C38-NC	C38-COM	C38-NO	6	C38-NC	C39-NC	C40-NC	C41-NC	C42-NC
C39-NC	C39-COM	C39-NO	7	C43-COM	C44-COM	C45-COM	C46-COM	C47-COM
C40-NC	C40-COM	C40-NO	8	C43-NO	C44-NO	C45-NO	C46-NO	C47-NO
C41-NC	C41-COM	C41-NO	9	C43-NC	C44-NC	C45-NC	C46-NC	C47-NC
C42-NC	C42-COM	C42-NO	10	C48-COM	C49-COM	C50-COM	C51-COM	C52-COM
C43-NC	C43-COM	C43-NO	11	C48-NO	C49-NO	C50-NO	C51-NO	C52-NO
C44-NC	C44-COM	C44-NO	12	C48-NC	C49-NC	C50-NC	C51-NC	C52-NC
C45-NC	C45-COM	C45-NO	13	C53-COM	C54-COM	C55-COM	C56-COM	C57-COM
C46-NC	C46-COM	C46-NO	14	C53-NO	C54-NO	C55-NO	C56-NO	C57-NO
C47-NC	C47-COM	C47-NO	15	C53-NC	C54-NC	C55-NC	C56-NC	C57-NC
C48-NC	C48-COM	C48-NO	16	C58-COM	C59-COM	C60-COM	C61-COM	C62-COM
C49-NC	C49-COM	C49-NO	17	C58-NO	C59-NO	C60-NO	C61-NO	C62-NO
C50-NC	C50-COM	C50-NO	18	C58-NC	C59-NC	C60-NC	C61-NC	C62-NC
C51-NC	C51-COM	C51-NO	19	C63-COM	C64-COM	SP19-COM	SP20-COM	SP21-COM
C52-NC	C52-COM	C52-NO	20	C63-NO	C64-NO	SP19-NO	SP20-NO	SP21-NO
C53-NC	C53-COM	C53-NO	21	C63-NC	C64-NC	SP19-NC	SP20-NC	SP21-NC
C54-NC	C54-COM	C54-NO	22	SP22-COM	SP23-COM	SP24-COM	SP25-COM	SP26-COM
C55-NC	C55-COM	C55-NO	23	SP22-NO	SP23-NO	SP24-NO	SP25-NO	SP26-NO
C56-NC	C56-COM	C56-NO	24	SP22-NC	SP23-NC	SP24-NC	SP25-NC	SP26-NC
C57-NC	C57-COM	C57-NO	25	SP27-COM	SP28-COM	SP29-COM	SP30-COM	SP31-COM
C58-NC	C58-COM	C58-NO	26	SP27-NO	SP28-NO	SP29-NO	SP30-NO	SP31-NO
C59-NC	C59-COM	C59-NO	27	SP27-NC	SP28-NC	SP29-NC	SP30-NC	SP31-NC
C60-NC	C60-COM	C60-NO	28	SP32-COM	SP33-COM	SP34-COM	SP35-COM	SP36-COM
C61-NC	C61-COM	C61-NO	29	SP32-NO	SP33-NO	SP34-NO	SP35-NO	SP36-NO
C62-NC	C62-COM	C62-NO	30	SP32-NC	SP33-NC	SP34-NC	SP35-NC	SP36-NC
C63-NC	C63-COM	C63-NO	31	SHIELD	SHIELD	SHIELD	SHIELD	OPEN*
C64-NC	C64-COM	C64-NO	32	SHIELD	SHIELD	SHIELD	SHIELD	GND

TABLE 6-2: TEKTRONIX VX4350 TO VXI TECHNOLOGY SM4350 PINOUT CROSS-REFERENCE (CONNECTOR J70 TO J101)

TEKTRONIX VX4350 (J70)			PIN	VXI TECHNOLOGY SM4350 (J101)				
a	b	c		a	b	c	d	e
C1-NC	C1-COM	C1-NO	1	C1-COM	C2-COM	C3-COM	C4-COM	C5-COM
C2-NC	C2-COM	C2-NO	2	C1-NO	C2-NO	C3-NO	C4-NO	C5-NO
C3-NC	C3-COM	C3-NO	3	C1-NC	C2-NC	C3-NC	C4-NC	C5-NC
C4-NC	C4-COM	C4-NO	4	C6-COM	C7-COM	C8-COM	C9-COM	C10-COM
C5-NC	C5-COM	C5-NO	5	C6-NO	C7-NO	C8-NO	C9-NO	C10-NO
C6-NC	C6-COM	C6-NO	6	C6-NC	C7-NC	C8-NC	C9-NC	C10-NC
C7-NC	C7-COM	C7-NO	7	C11-COM	C12-COM	C13-COM	C14-COM	C15-COM
C8-NC	C8-COM	C8-NO	8	C11-NO	C12-NO	C13-NO	C14-NO	C15-NO
C9-NC	C9-COM	C9-NO	9	C11-NC	C12-NC	C13-NC	C14-NC	C15-NC
C10-NC	C10-COM	C10-NO	10	C16-COM	C17-COM	C18-COM	C19-COM	C20-COM
C11-NC	C11-COM	C11-NO	11	C16-NO	C17-NO	C18-NO	C19-NO	C20-NO
C12-NC	C12-COM	C12-NO	12	C16-NC	C17-NC	C18-NC	C19-NC	C20-NC
C13-NC	C13-COM	C13-NO	13	C21-COM	C22-COM	C23-COM	C24-COM	C25-COM
C14-NC	C14-COM	C14-NO	14	C21-NO	C22-NO	C23-NO	C24-NO	C25-NO
C15-NC	C15-COM	C15-NO	15	C21-NC	C22-NC	C23-NC	C24-NC	C25-NC
C16-NC	C16-COM	C16-NO	16	C26-COM	C27-COM	C28-COM	C29-COM	C30-COM
C17-NC	C17-COM	C17-NO	17	C26-NO	C27-NO	C28-NO	C29-NO	C30-NO
C18-NC	C18-COM	C18-NO	18	C26-NC	C27-NC	C28-NC	C29-NC	C30-NC
C19-NC	C19-COM	C19-NO	19	C31-COM	C32-COM	SP1-COM	SP2-COM	SP3-COM
C20-NC	C20-COM	C20-NO	20	C31-NO	C32-NO	SP1-NO	SP2-NO	SP3-NO
C21-NC	C21-COM	C21-NO	21	C31-NC	C32-NC	SP1-NC	SP2-NC	SP3-NC
C22-NC	C22-COM	C22-NO	22	SP4-COM	SP5-COM	SP6-COM	SP7-COM	SP8-COM
C23-NC	C23-COM	C23-NO	23	SP4-NO	SP5-NO	SP6-NO	SP7-NO	SP8-NO
C24-NC	C24-COM	C24-NO	24	SP4-NC	SP5-NC	SP6-NC	SP7-NC	SP8-NC
C25-NC	C25-COM	C25-NO	25	SP9-COM	SP10-COM	SP11-COM	SP12-COM	SP13-COM
C26-NC	C26-COM	C26-NO	26	SP9-NO	SP10-NO	SP11-NO	SP12-NO	SP13-NO
C27-NC	C27-COM	C27-NO	27	SP9-NC	SP10-NC	SP11-NC	SP12-NC	SP13-NC
C28-NC	C28-COM	C28-NO	28	SP14-COM	SP15-COM	SP16-COM	SP17-COM	SP18-COM
C29-NC	C29-COM	C29-NO	29	SP14-NO	SP15-NO	SP16-NO	SP17-NO	SP18-NO
C30-NC	C30-COM	C30-NO	30	SP14-NC	SP15-NC	SP16-NC	SP17-NC	SP18-NC
C31-NC	C31-COM	C31-NO	31	SHIELD	SHIELD	SHIELD	SHIELD	OPEN*
C32-NC	C32-COM	C32-NO	32	SHIELD	SHIELD	SHIELD	SHIELD	GND

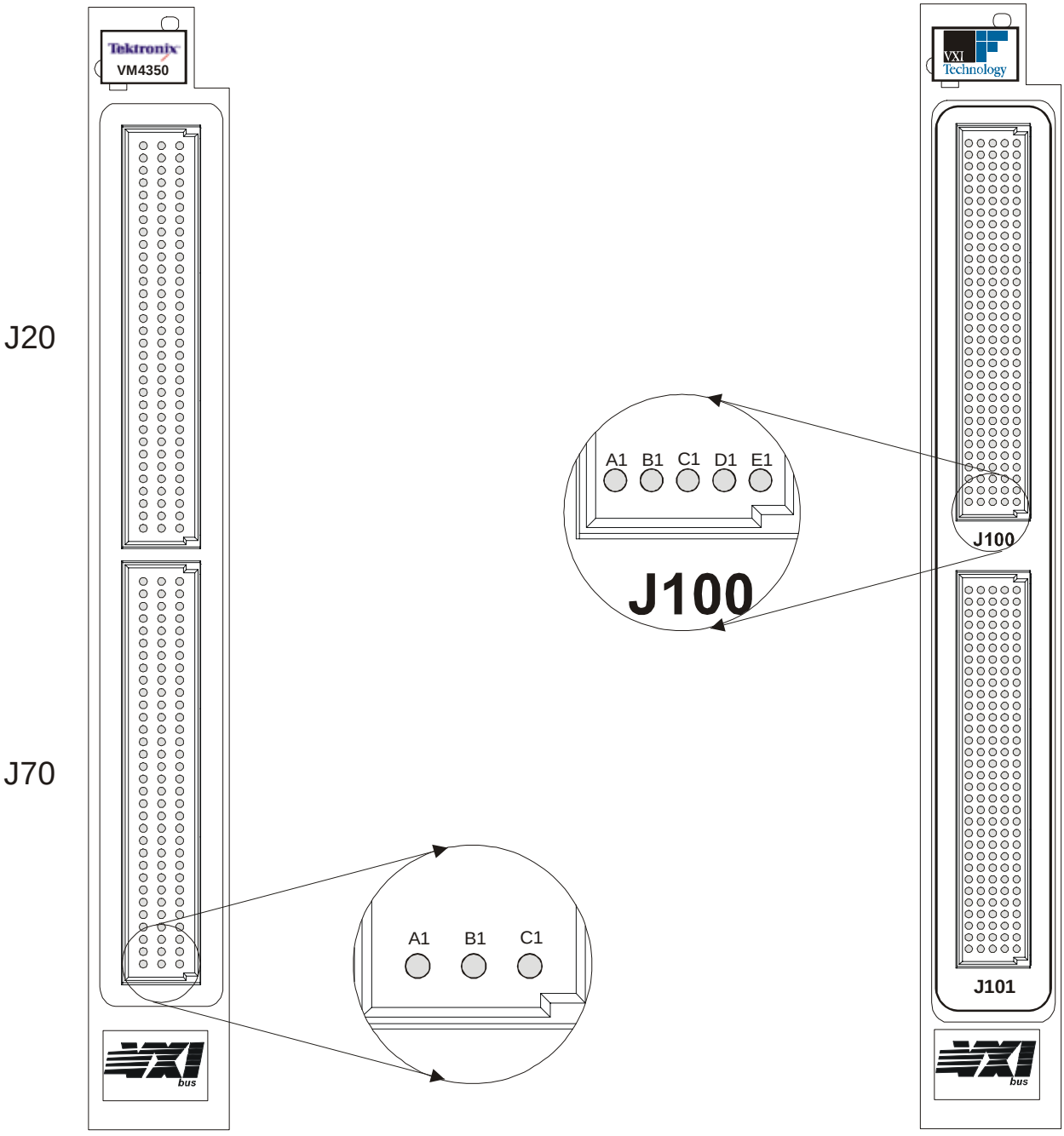


FIGURE 6-1: PINOUT CROSS-REFERENCE (FRONT PANEL DIAGRAM) VX4350 TO SM4350

VXI*PLUG&PLAY* COMMON FUNCTION CALLS

Background

The VX4350 is part of the SurePath family of switch cards. As such, a SurePath controller card is required to communicate to this device. The SurePath controller card is installed in either the left-most switch card of a SurePath switching system or in a VX4101 MultiPaq instrument.

If the SurePath controller card is installed in a SurePath family switch, all calls made to a SurePath switch card are made through *tkvx43x0_32.dll*. If the SurePath controller is installed in a VX4101 MultiPaq device, then all function calls to a SurePath switch are made through the *tkmpscan_32.dll*. An example is shown below:

1. tkvx43x0_closeRelayVX4350 (id, "M1", 4);

2. tkmpscan_closeRelayVX4350 (id, "M1", 4);

Both function calls perform identical operations, in this case closing relay number 4 on module M1, however, the first one is called if the VX4350 is part of a SurePath system where the controller card is installed in another switch card and the second one is called if the controller card is installed in a VX4101 MultiPaq device.

Rehosting

To replace obsolete components typically requires a great deal of software effort because there are often many test program sets that need to be changed. VXI Technology has greatly simplified this task by developing a translation driver set for the SurePath family. The translation driver takes Tektronix function calls, such as in the example above and converts them to SMIP *II* calls. The result is that any code written to operate with the VX4350 can be used, without modification, when an SM4350 is installed in its place. It is important to note that to use the translation driver, all cards that were part of the SurePath system must be replaced by equivalent SMIP *II* modules (i.e. Tektronix VXI switch cards and VTI switch cards cannot be in the same chassis when using the translation driver set).

All commonly used functions are supported in the translation driver set. For those functions not supported, VTI includes the translation driver source code for custom modification or will add the functions by request. A list of all *tkvx43x0* functions related to the VX4350 supported in the translation driver set are listed in the following table. For *tkmpscan* supported functions, please refer to Section 7.4c, VX4101 SurePath Controller.

TABLE 6-3: TKVX43X0_32.DLL: SM4350 TRANSLATION DRIVER SET, SUPPORTED FUNCTIONS

Class or Window		Function
Initialize		tkvx43x0_init
Auto Initialize		tkvx43x0_autoConnectToFirst
Auto Initialize		tkvx43x0_autoConnectToSlot
Auto Initialize		tkvx43x0_autoConnectToLA
Auto Initialize		tkvx43x0_autoConnectToAll
Daughter Board		tkvx43x0_ID_slaveModules
Daughter Board		tkvx43x0_catalogModules
Daughter Board		tkvx43x0_moduleNames
Daughter Board		tkvx43x0_TTL_triggers
Daughter Board		tkvx43x0_status
Daughter Board	Querys	tkvx43x0_queryModuleNumber
Daughter Board	Querys	tkvx43x0_queryTTL_triggers
Daughter Board	Querys	tkvx43x0_queryStatusOperation
TKVX4350	Configure	tkvx43x0_closeRelayVX4350
TKVX4350	Configure	tkvx43x0_closeRelayList
TKVX4350	Configure	tkvx43x0_openRelayVX4350
TKVX4350	Configure	tkvx43x0_openRelayList
TKVX4350	Configure	tkvx43x0_queryRelayVX4350
TKVX4350	Configure	tkvx43x0_openAll
TKVX4350	Scan	tkvx43x0_scan
TKVX4350	Scan	tkvx43x0_abort
TKVX4350	Scan	tkvx43x0_triggerStatusSetting
TKVX4350	Scan	tkvx43x0_triggerSetup
TKVX4350	Scan	tkvx43x0_trigger
TKVX4350	Relay Delay	tkvx43x0_closeDelay
TKVX4350	Relay Delay	tkvx43x0_openDelay
Utility	Error Handling	tkvx43x0_error_message
Utility	Error Handling	tkvx43x0_error_query
Utility		tkvx43x0_reset
Utility		tkvx43x0_self_test
Utility		tkvx43x0_revision_query
Utility		tkvx43x0_getSlotList
Utility		tkvx43x0_getSlotandLAList
Utility		tkvx43x0_getSlotNumber
Utility		tkvx43x0_getInstrDesc
Utility		tkvx43x0_getSlotandLAList
Utility		tkvx43x0_getManufacturerID
Utility		tkvx43x0_getModelCode
Utility		tkvx43x0_getVisaRev
Utility		tkvx43x0_sleep
Close		tkvx43x0_close

Exceptions

1.) tkvx43x0_powerFailure - This function is not supported and if called, will return an error. The SM4350 uses non-latching relays. Upon removal of power, all relays will open to their reset state.

SECTION 7

VX4351 TO SM4351: SPST, 10 A/16 A

SPECIFICATION COMPARISONS

Note The information provided in this section is specific to the ***SM4351***. The ***SM4351A*** provides a *pin-to-pin replica* of the Tektronix VM4350 and is presented in ***Section 4***.

GENERAL SPECIFICATIONS	Tektronix VX4351	VXI Technology SM4351
MODEL TYPE	Power Switching	Power Switching
CONFIGURATION	40 SPST (Form A) Relays	40 SPST (Form A) Relays
INTERFACE TYPE	Message Based, SCPI, IEEE 488.2	Register Based
VXI REVISION LEVEL	1.4	1.4
INSTRUMENT DRIVERS	WIN framework (Rev. 4.0) WIN95 framework (Rev. 4.0) WINNT framework (Rev. 4.0)	 WIN95 framework (Rev. 4.0) WINNT framework (Rev. 4.0)
RATED SWITCH OPERATIONS		
Mechanical	Not Available	5×10^7
Electrical	1×10^5 (Full Load)	1×10^5 (Full Load)
MODULE SIZE	Single-wide, C-size	Single-wide, C-size
POWER SPECIFICATIONS		
MAXIMUM SWITCHING VOLTAGE	250 V dc or 250 V ac rms	125 V dc, 250 V ac
MAXIMUM SWITCHING CURRENT	10 A / channel	16 A / channel
MAXIMUM SWITCHING POWER		
DC	300 W / channel	300 W / channel
AC	2500 VA / channel	2500 VA / channel
DC PERFORMANCE		
PATH RESISTANCE	< 0.1 Ω	< 0.1 Ω
INSULATION RESISTANCE	$> 1 \times 10^7$ Ω	$> 1 \times 10^9$ Ω
AC PERFORMANCE		
BANDWIDTH (-3 dB)	> 10 MHz	> 40 MHz
CROSSTALK		
100 kHz	Not Available	< -75 dB
1 MHz	Not Available	< -50 dB
10 MHz	Not Available	< -40 dB

INTERFACING TO THE MODULE

The SM4351 has two, high density 41-pin connectors on its front panel for I/O interfacing. There are two additional 2-pin connectors that provide access to the open bus input Mating connector and pin part numbers are referenced below. These parts can be ordered directly from VXI Technology or the manufacturer listed in the table.

ACCESSORIES

70-0190-001: 41-Pin Connector Kit with Strain Relief and Pins			
Desc: Conn. Strain Relief, 41-Pin	Mfgr.: AMP	Mfgr P/N: 201766-1	Contact Info: 800-522-6752/www.amp.com
Desc: Conn. Housing	Mfgr.: Positronics	Mfgr P/N: GMCT41F000000	Contact Info: 800-641-4054/www.positronic.com
Desc: Contact, Crimp Pin, Qty: 44	Mfgr.: Positronics	Mfgr P/N: FC114N2	Contact Info: 800-641-4054/www.positronic.com
NOTE: This backshell provides additional space for applications requiring full population of the connector.			
70-0190-000: 41-Pin Connector Kit with Strain Relief (No Pins)			
Desc: Conn. Strain Relief, 41-Pin	Mfgr.: AMP	Mfgr P/N: 201766-1	Contact Info: 800-522-6752/www.amp.com
Desc: Conn. Housing	Mfgr.: Positronics	Mfgr P/N: GMCT41F000000	Contact Info: 800-641-4054/www.positronic.com
NOTE: This backshell provides additional space for applications requiring full population of the connector.			
52-0102-001: Connector Kit (Including 1 ea. Connector & Backshell, Plus 44 Crimp Pins)			
Desc: Connector & Backshell	Mfgr.: Positronics	Mfgr P/N: GMCT41F0E100J0	Contact Info: 800-641-4054/www.positronic.com
Desc: Crimp Pins	Mfgr.: Positronics	Mfgr P/N: FC114N2	Contact Info: 800-641-4054/www.positronic.com
NOTE: At full population, this connector does not allow for cable dressing.			
27-0144-002: 2-Pin Connector			
Desc: 2-Pin Connector	Mfgr.: AMP	Mfgr P/N: 104257-1	Contact Info: 800-522-6752/www.amp.com
27-0016-999: Crimp Pins			
Desc: Crimp Pins	Mfgr.: AMP	Mfgr P/N: 530553-7	Contact Info: 800-522-6752/www.amp.com
52-0113-000: 10-Pin Cable Assembly			
Desc: 6ft. 14GA Wire, 10 Crimp Pins	Mfgr.: VXI Tech.	Mfgr P/N: 52-0113-000	Contact Info: 949-955-1VXI/www.vxitech.com
46-0012-000: Crimp Tool w/ Turret Head			
Desc: Crimp Tool w/ Turret Head	Mfgr.: Positronics	Mfgr P/N: 9501 and 9502-1	Contact Info: 800-641-4054/www.positronic.com
46-0014-000: Insertion Tool			
Desc: Insertion Tool	Mfgr.: Positronics	Mfgr P/N: 9099	Contact Info: 800-641-4054/www.positronic.com
46-0015-000: Extraction Tool			
Desc: Extraction Tool	Mfgr.: Positronics	Mfgr P/N: 9081	Contact Info: 800-641-4054/www.positronic.com

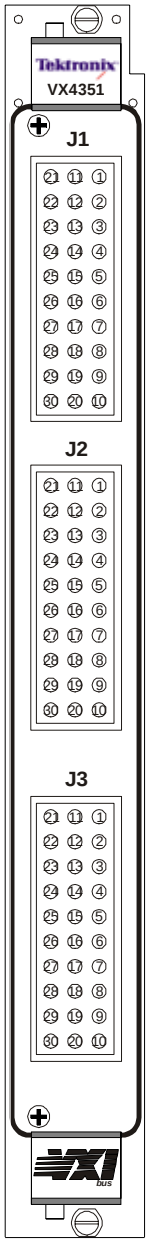
In many ATE applications, a termination panel for the instrumentation is utilized. This termination panel will have connectors that mate to the UUT or an intermediate test fixture. A termination panel may take the form of an Interconnect Assembly (ICA) made by manufacturers such as Virginia Panel or Macpanel. In either case, it is desirable to maintain the same I/O layout at the panel to avoid costly redesign of test fixturing or UUT cable assemblies.

VXI Technology offers a couple of options that prevent the need for any interface panel to UUT redesign as follows:

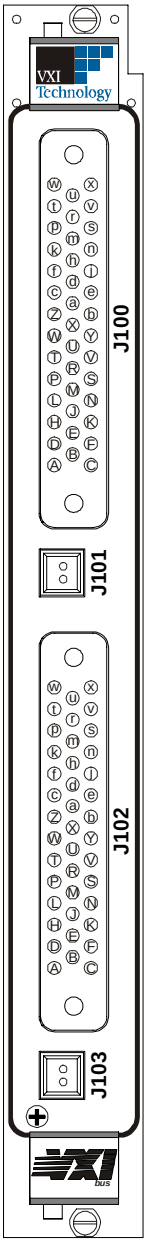
- wired funnel assemblies that mate directly to the SM4351 front panel
- custom cabling between SM4351 front panel and ICA/termination panel

For customers who plan on developing their own cabling between the SM4351 and the termination panel, this section provides a cross-reference pinout table between the VX4351 and the SM4351 in Figure 7-1.

FIGURE 7-1: PINOUT CROSS-REFERENCE DIAGRAM & TABLE VX4351 TO SM4351



VX4351		SM4351	
SIGNAL	PINS	SIGNAL	PINS
K1	J1.1, J1.2	K1	J100 A, J100 B
K2	J1.3, J1.4	K2	J100 C, J100 D
K3	J1.5, J1.6	K3	J100 E, J100 F
K4	J1.7, J1.8	K4	J100 H, J100 J
K5	J1.9, J1.10	K5	J100 K, J100 L
K6	J1.11, J1.12	K6	J100 M, J100 N
K7	J1.13, J1.14	K7	J100 P, J100 R
K8	J1.15, J1.16	K8	J100 S, J100 T
K9	J1.17, J1.18	K9	J100 U, J100 V
K10	J1.19, J1.20	K10	J100 W, J100 X
K11	J1.21, J1.22	K11	J100 Y, J100 Z
K12	J1.23, J1.24	K12	J100 a, J100 b
K13	J1.25, J1.26	K13	J100 c, J100 d
K14	J1.27, J1.28	K14	J100 e, J100 f
K15	J2.1, J2.2	K15	J100 h, J100 j
K16	J2.3, J2.4	K16	J100 k, J100 m
K17	J2.5, J2.6	K17	J100 n, J100 p
K18	J2.7, J2.8	K18	J100 r, J100 s
K19	J2.9, J2.10	K19	J100 t, J100 u
K20	J2.11, J2.12	K20	J100 v, J100 w
K21	J2.13, J2.14	K21	J101 A, J101 B
K22	J2.15, J2.16	K22	J101 C, J101 D
K23	J2.17, J2.18	K23	J101 E, J101 F
K24	J2.19, J2.20	K24	J101 H, J101 J
K25	J2.21, J2.22	K25	J101 K, J101 L
K26	J2.23, J2.24	K26	J101 M, J101 N
K27	J3.1, J3.2	K27	J101 P, J101 R
K28	J3.3, J3.4	K28	J101 S, J101 T
K29	J3.5, J3.6	K29	J101 U, J101 V
K30	J3.7, J3.8	K30	J101 W, J101 X
K31	J3.9, J3.10	K31	J101 Y, J101 Z
K32	J3.11, J3.12	K32	J101 a, J101 b
K33	J3.13, J3.14	K33	J101 c, J101 d
K34	J3.15, J3.16	K34	J101 e, J101 f
K35	J3.17, J3.18	K35	J101 h, J101 j
K36	J3.19, J3.20	K36	J101 k, J101 m
K37	J3.21, J3.22	K37	J101 n, J101 p
K38	J3.23, J3.24	K38	J101 r, J101 s
K39	J3.25, J3.26	K39	J101 t, J101 u
K40	J3.27, J3.28	K40	J101 v, J101 w



VXI*PLUG&PLAY* COMMON FUNCTION CALLS

Background

The VX4351 is part of the SurePath family of switch cards. As such, a SurePath controller card is required to communicate with this device. The SurePath controller card is installed in either the left-most switch card of a SurePath switching system or in a VX4101 MultiPaq instrument.

If the SurePath controller card is installed in a SurePath family switch, all calls made to a SurePath switch card are made through *tkvx43x0_32.dll*. If the SurePath controller is installed in a VX4101 MultiPaq device, then all function calls to a SurePath switch are made through the *tkmpscan_32.dll*. An example is shown below:

1. tkvx43x0_closeRelayVX4351 (id, "M1", 4);

2. tkmpscan_closeRelayVX4351 (id, "M1", 4);

Both function calls perform identical operations, in this case closing relay number 4 on module M1, however, the first one is called if the VX4351 is part of a SurePath system where the controller card is installed in another switch card and the second one is called if the controller card is installed in a VX4101 MultiPaq device

Rehosting

To replace obsolete components typically requires a great deal of software effort because there are often many test program sets that need to be changed. VXI Technology has greatly simplified this task by developing a translation driver set for the SurePath family. The translation driver takes Tektronix function calls, such as in the example above and converts them to SMIP *II* calls. The result is that any code written to operate with the VX4351 can be used, without modification, when an SM4351 is installed in its place. It is important to note that to use the translation driver, all cards that were part of the SurePath system must be replaced by equivalent SMIP *II* modules (i.e. Tektronix VXI switch cards and VTI switch cards cannot be in the same chassis when using the translation driver set).

All commonly used functions are supported in the translation driver set. For those functions not supported, VTI includes the translation driver source code for custom modification or will add the functions by request. A list of all *tkvx43x0* functions related to the VX4351 supported in the translation driver set are listed in the following table. For *tkmpscan* supported functions, please refer to Section 7.4c, VX4101 SurePath Controller.

TABLE 7-1: TKVX43X0_32.DLL: SM4351 TRANSLATION DRIVER SET, SUPPORTED FUNCTIONS

Class or Window		Function
Initialize		tkvx43x0_init
Auto Initialize		tkvx43x0_autoConnectToFirst
Auto Initialize		tkvx43x0_autoConnectToSlot
Auto Initialize		tkvx43x0_autoConnectToLA
Auto Initialize		tkvx43x0_autoConnectToAll
Daughter Board		tkvx43x0_ID_slaveModules
Daughter Board		tkvx43x0_catalogModules
Daughter Board		tkvx43x0_moduleNames
Daughter Board		tkvx43x0_TTL_triggers
Daughter Board		tkvx43x0_status
Daughter Board	Querys	tkvx43x0_queryModuleNumber
Daughter Board	Querys	tkvx43x0_queryTTL_triggers
Daughter Board	Querys	tkvx43x0_queryStatusOperation
TKVX4351	Configure	tkvx43x0_configureModeVX4351
TKVX4351	Configure	tkvx43x0_closeRelayVX4351
TKVX4351	Configure	tkvx43x0_closeRelayList
TKVX4351	Configure	tkvx43x0_openRelayVX4351
TKVX4351	Configure	tkvx43x0_openRelayList
TKVX4351	Configure	tkvx43x0_queryRelayVX4351
TKVX4351	Configure	tkvx43x0_openAll
TKVX4351	Relay Delay	tkvx43x0_closeDelay
TKVX4351	Relay Delay	tkvx43x0_openDelay
Utility	Error Handling	tkvx43x0_error_message
Utility	Error Handling	tkvx43x0_error_query
Utility		tkvx43x0_reset
Utility		tkvx43x0_self_test
Utility		tkvx43x0_revision_query
Utility		tkvx43x0_getSlotList
Utility		tkvx43x0_getSlotandLAList
Utility		tkvx43x0_getSlotNumber
Utility		tkvx43x0_getInstrDesc
Utility		tkvx43x0_getSlotandLAList
Utility		tkvx43x0_getManufacturerID
Utility		tkvx43x0_getModelCode
Utility		tkvx43x0_getVisaRev
Utility		tkvx43x0_sleep
Close		tkvx43x0_close

Exceptions

1.) The application function 'tkvx43x0_measOperateVX4351Test' is not supported.

SECTION 8

VX4357 TO SM4357: SPDT, 5 A

SPECIFICATION COMPARISONS

Note The information provided in this section is specific to the ***SM4357***. The ***SM4357A*** provides a *pin-to-pin replica* of the Tektronix VM4350 and is presented in ***Section 5***.

GENERAL SPECIFICATIONS	Tektronix VX4357	VXI Technology SM4357
MODEL TYPE	General Purpose	General Purpose
CONFIGURATION	32 SPDT (Form C) Relays	60 SPST (Form C) Relays
INTERFACE TYPE	Message Based, SCPI, IEEE 488.2	Register Based
VXI REVISION LEVEL	1.4	1.4
INSTRUMENT DRIVERS	WIN framework (Rev. 4.0) WIN95 framework (Rev. 4.0) WINNT framework (Rev. 4.0)	 WIN95 framework (Rev. 4.0) WINNT framework (Rev. 4.0)
RATED SWITCH OPERATIONS		
Mechanical	Not Available	1×10^7
Electrical	2×10^5 (Full Load)	5×10^5 (Full Load)
MODULE SIZE	Single-wide, C-size	Single-wide, C-size
POWER SPECIFICATIONS		
MAXIMUM SWITCHING VOLTAGE	48 V dc or 250 V ac rms	110 V dc, 250 V ac
MAXIMUM SWITCHING CURRENT	5 A / channel	5 A / channel
MAXIMUM SWITCHING POWER		
DC	90 W / channel	150 W / channel
AC	1000 VA / channel	1250 VA / channel
DC PERFORMANCE		
PATH RESISTANCE	< 0.30 Ω	< 0.15 Ω
INSULATION RESISTANCE	$> 1 \times 10^9$ Ω	$> 1 \times 10^9$ Ω
AC PERFORMANCE		
BANDWIDTH (-3 dB)	Not Available	> 50 MHz
CROSSTALK		
100 kHz	Not Available	< -80 dB
1 MHz	Not Available	< -60 dB
10 MHz	Not Available	< -40 dB

INTERFACING TO THE MODULE

The SM4357 has four, 50-pin high density connectors on its front panel for I/O interfacing. Mating connector and pin part numbers are referenced below. These parts can be ordered directly from VXI Technology or the manufacturer listed in the table.

ACCESSORIES			
52-0195-000: Conn. Kit (Including Connectors, Backshells and 104 Pins)			
Desc: Connector	Mfgr.: Positronics	Mfgr P/N: SGMC50M0E100J0	Contact Info: 800-641-4054/www.positronic.com
Desc: Crimp Pins	Mfgr.: Positronics	Mfgr P/N: MS422N	Contact Info: 800-641-4054/www.positronic.com
52-0196-000: 50-Pin Connector & Backshell (No Pins) 2 Required			
Desc: Connector	Mfgr.: Positronics	Mfgr P/N: SGMC50M0E100J0	Contact Info: 800-641-4054/www.positronic.com
46-0037-000: Insertion Tool			
Desc: Insertion Tool	Mfgr.: Positronics	Mfgr P/N: 9099-1	Contact Info: 800-641-4054/www.positronic.com
46-0036-000: Extraction Tool			
Desc: Extraction Tool	Mfgr.: Positronics	Mfgr P/N: 9081-1	Contact Info: 800-641-4054/www.positronic.com

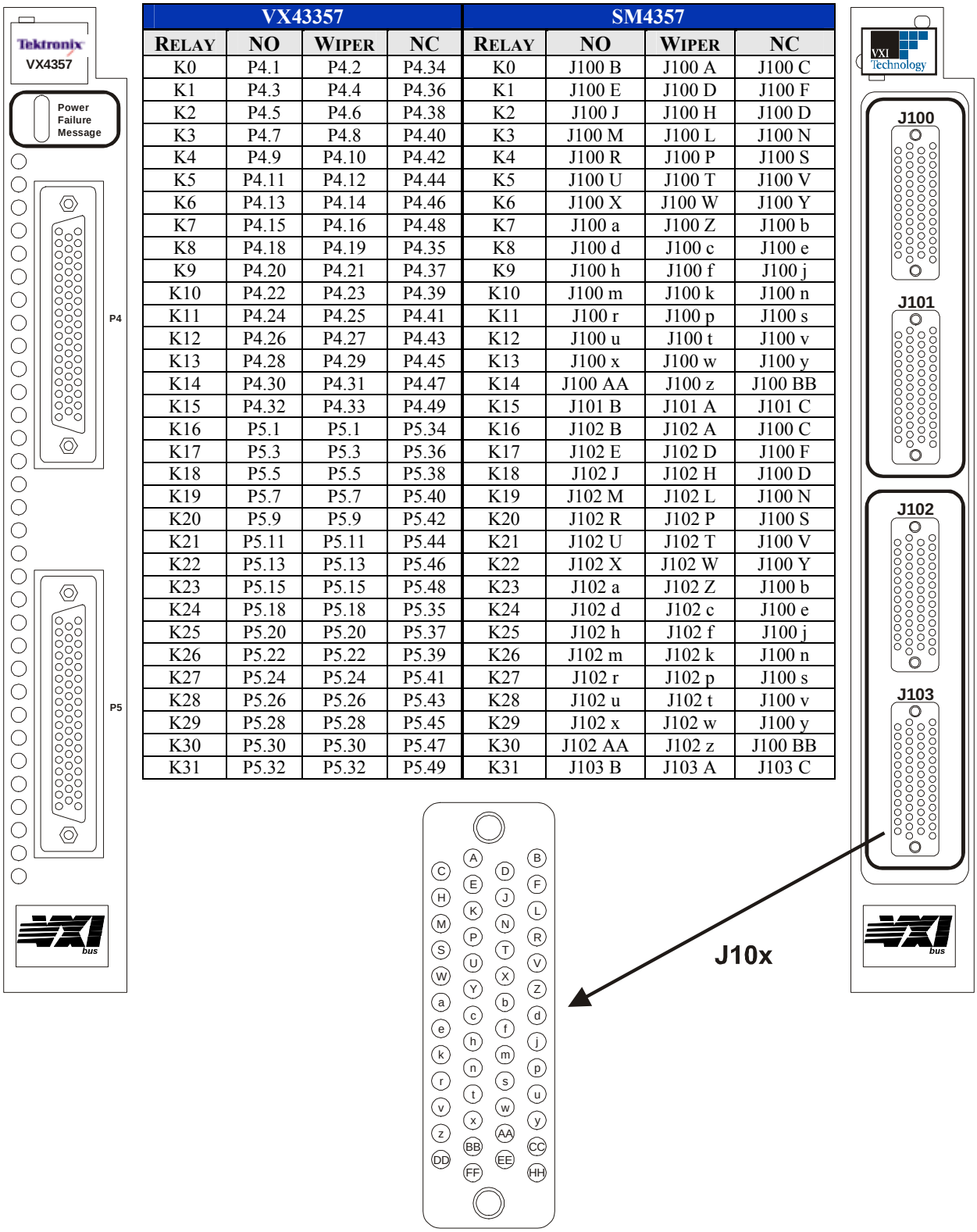
In many ATE applications, a termination panel for the instrumentation is utilized. This termination panel will have connectors that mate to the UUT or an intermediate test fixture. A termination panel may take the form of an Interconnect Assembly (ICA) made by manufacturers such as Virginia Panel or Macpanel. In either case, it is desirable to maintain the same I/O layout at the panel to avoid costly redesign of test fixturing or UUT cable assemblies.

VXI Technology offers a couple of options that prevent the need for any interface panel to UUT redesign as follows:

- wired funnel assemblies that mate directly to the SM4357 front panel
- custom cabling between SM4357 front panel and ICA/termination panel

For customers who plan on developing their own cabling between the SM4357 and the termination panel, this section provides a cross-reference pinout table between the VX4357 and the SM4357 in Figure 8-1.

FIGURE 8-1: PINOUT CROSS-REFERENCE DIAGRAM & TABLE VX4357 TO SM4357



VX43357				SM4357			
RELAY	NO	WIPER	NC	RELAY	NO	WIPER	NC
K0	P4.1	P4.2	P4.34	K0	J100 B	J100 A	J100 C
K1	P4.3	P4.4	P4.36	K1	J100 E	J100 D	J100 F
K2	P4.5	P4.6	P4.38	K2	J100 J	J100 H	J100 D
K3	P4.7	P4.8	P4.40	K3	J100 M	J100 L	J100 N
K4	P4.9	P4.10	P4.42	K4	J100 R	J100 P	J100 S
K5	P4.11	P4.12	P4.44	K5	J100 U	J100 T	J100 V
K6	P4.13	P4.14	P4.46	K6	J100 X	J100 W	J100 Y
K7	P4.15	P4.16	P4.48	K7	J100 a	J100 Z	J100 b
K8	P4.18	P4.19	P4.35	K8	J100 d	J100 c	J100 e
K9	P4.20	P4.21	P4.37	K9	J100 h	J100 f	J100 j
K10	P4.22	P4.23	P4.39	K10	J100 m	J100 k	J100 n
K11	P4.24	P4.25	P4.41	K11	J100 r	J100 p	J100 s
K12	P4.26	P4.27	P4.43	K12	J100 u	J100 t	J100 v
K13	P4.28	P4.29	P4.45	K13	J100 x	J100 w	J100 y
K14	P4.30	P4.31	P4.47	K14	J100 AA	J100 z	J100 BB
K15	P4.32	P4.33	P4.49	K15	J101 B	J101 A	J101 C
K16	P5.1	P5.1	P5.34	K16	J102 B	J102 A	J100 C
K17	P5.3	P5.3	P5.36	K17	J102 E	J102 D	J100 F
K18	P5.5	P5.5	P5.38	K18	J102 J	J102 H	J100 D
K19	P5.7	P5.7	P5.40	K19	J102 M	J102 L	J100 N
K20	P5.9	P5.9	P5.42	K20	J102 R	J102 P	J100 S
K21	P5.11	P5.11	P5.44	K21	J102 U	J102 T	J100 V
K22	P5.13	P5.13	P5.46	K22	J102 X	J102 W	J100 Y
K23	P5.15	P5.15	P5.48	K23	J102 a	J102 Z	J100 b
K24	P5.18	P5.18	P5.35	K24	J102 d	J102 c	J100 e
K25	P5.20	P5.20	P5.37	K25	J102 h	J102 f	J100 j
K26	P5.22	P5.22	P5.39	K26	J102 m	J102 k	J100 n
K27	P5.24	P5.24	P5.41	K27	J102 r	J102 p	J100 s
K28	P5.26	P5.26	P5.43	K28	J102 u	J102 t	J100 v
K29	P5.28	P5.28	P5.45	K29	J102 x	J102 w	J100 y
K30	P5.30	P5.30	P5.47	K30	J102 AA	J102 z	J100 BB
K31	P5.32	P5.32	P5.49	K31	J103 B	J103 A	J103 C

VXI*PLUG&PLAY* COMMON FUNCTION CALLS

Background

The VX4357 is a Tektronix/CDS legacy card. It is not part of the SurePath family, therefore, its driver is completely independent of the SurePath function calls.

Rehosting

To replace obsolete components typically requires a great deal of software effort because there are often many test program sets that need to be changed. VXI Technology has greatly simplified this task by developing a translation driver set for Tektronix instruments and switches for which there are functionally compatible VTI modules . The translation driver for the VX4357 takes Tektronix function calls, and converts them to SMIP *II* calls. The result is that any code written to operate with the VX4357 can be used, without modification, when an SM4357 is installed in its place.

All commonly used functions are supported in the translation driver set. For those functions not supported, VTI includes the translation driver source code for custom modification or will add unsupported functions to the set by request. A list of all *tkvx4357* functions supported in the translation driver set are listed in the following table.

TABLE 8-1: TKVX4357_32.DLL: SM4357 TRANSLATION DRIVER - SUPPORTED FUNCTIONS

Class or Window		Function
Initialize		tkvx4357_init
Auto Initialize		tkvx4357_autoConnectToFirst
Auto Initialize		tkvx4357_autoConnectToSlot
Auto Initialize		tkvx4357_autoConnectToLA
Auto Initialize		tkvx4357_autoConnectToAll
Route		tkvx4357_setOrReset
Route		tkvx4357_switchRelay
Route		tkvx4357_queryRelay
Route		tkvx4357_delay
Route		tkvx4357_queryDelay
Route		tkvx4357_setRelaySwitches1
Route		tkvx4357_setRelaySwitches2
Route		tkvx4357_setRelaySwitches3
Route		tkvx4357_setRelaySwitches4
Utility	Error Handling	tkvx43x0_error_message
Utility	Error Handling	tkvx43x0_error_query
Utility		tkvx43x0_reset
Utility		tkvx43x0_self_test
Utility		tkvx43x0_revision_query
Utility		tkvx43x0_getSlotList
Utility		tkvx43x0_getSlotandLAList
Utility		tkvx43x0_getSlotNumber
Utility		tkvx43x0_getInstrDesc
Utility		tkvx43x0_getSlotandLAList
Utility		tkvx43x0_getManufacturerID
Utility		tkvx43x0_getModelCode
Utility		tkvx43x0_getVisaRev
Utility		tkvx43x0_sleep
Close		tkvx43x0_close

Exceptions

None

SECTION 9

VX4320 TO SM4320: 8 (1 x 4) 1 GHZ MUX

SPECIFICATION COMPARISONS

GENERAL SPECIFICATIONS	Tektronix VX4357	VXI Technology SM4357
MODEL TYPE	High Frequency Switching	High Frequency Switching
CONFIGURATION	8 (1 x 4) Coax Muxes	10 (1 x 4) Coax Muxes
INTERFACE TYPE	Message Based, SCPI, IEEE 488.2	Register Based
VXI REVISION LEVEL	1.4	1.4
INSTRUMENT DRIVERS	WIN framework (Rev. 4.0) WIN95 framework (Rev. 4.0) WINNT framework (Rev. 4.0)	 WIN95 framework (Rev. 4.0) WINNT framework (Rev. 4.0)
RATED SWITCH OPERATIONS **Mechanical** **Electrical**	 5×10^6 1×10^5 (Full Load)	 5×10^6 1×10^5 (Full Load)
MODULE SIZE	Single-wide, C-size	Single-wide, C-size
POWER SPECIFICATIONS		
MAXIMUM SWITCHING VOLTAGE	48 V dc or 250 V ac rms	100 V
MAXIMUM SWITCHING CURRENT RESISTIVE INDUCTIVE	 1 A 200 mA	 0.5 A Not Available
MAXIMUM SWITCHING POWER	10 W	10 W
DC PERFORMANCE		
PATH RESISTANCE	Not Available	< 1 Ω
INSULATION RESISTANCE	$> 1 \times 10^9$ Ω	$> 1 \times 10^9$ Ω
AC PERFORMANCE		
BANDWIDTH (-3 dB)	< 1.3 GHz	> 900 MHz
INSERTION LOSS **100 MHz** **500 MHz**	 Not Available Not Available	 < -0.2 dB < -0.5 dB
CROSSTALK **10 MHz** **100 MHz** **500 MHz**	 Not Available Not Available Not Available	 < -80 dB < -70 dB < -65 dB
VSWR **100 MHz** **900 MHz** **1.3 GHz**	 Not Available Not Available < 1.5:1	 < 1.2:1 < 1.5:1 Not Available

INTERFACING TO THE MODULE

The SM4320 has two, 26-pin high density connectors on its front panel for I/O interfacing. Mating connector and pin part numbers are referenced below. These parts can be ordered directly from VXI Technology or the manufacturer listed in the table.

ACCESSORIES			
70-0234-000: 26-Pin Connector Kit w/ VTI Backshell (Two Required)			
Desc: Connector	Mfgr.: Positronics	Mfgr P/N: GMCT26M0E100J0	Contact Info: 800-641-4054/www.positronic.com
Desc: Backshell	Mfgr.: VXI Tech.	Mfgr P/N: 41-0341-000	Contact Info: 949-955-1VXI/www.vxitech.com
NOTE: This backshell can accommodate a fully populated connector.			
27-0116-026: 26-Pin Connector and Backshell, No Pins (Two Required)			
Desc: 26-Pin Conn. & Backshell	Mfgr.: Positronics	Mfgr P/N: GMCT26M0E100J0	Contact Info: 800-641-4054/www.positronic.com
NOTE: This backshell can accommodate a maximum of 19 cables without cable dressing.			
52-0127-360: Single Coax Cable w/ RF Pin, 3 ft.			
Desc: Single Coax Cable w/ RF Pin	Mfgr.: VXI Tech	Mfgr P/N: 52-0127-360	Contact Info: 949-955-1VXI/www.vxitech.com
27-0116-000: RF Pin			
Desc: RF Pin	Mfgr.: Positronics	Mfgr P/N: MCS226N	Contact Info: 800-641-4054/www.positronic.com
46-0014-000: Insertion Tool			
Desc: Insertion Tool	Mfgr.: Positronics	Mfgr P/N: 9099	Contact Info: 800-641-4054/www.positronic.com
46-0013-000: Crimp Tool			
Desc: Crimp Tool	Mfgr.: Positronics	Mfgr P/N: 9506-0	Contact Info: 800-641-4054/www.positronic.com
46-0015-000: Extraction Tool			
Desc: Extraction Tool	Mfgr.: Positronics	Mfgr P/N: 9081	Contact Info: 800-641-4054/www.positronic.com

In many ATE applications, a termination panel for the instrumentation is utilized. This termination panel will have connectors that mate to the UUT or an intermediate test fixture. A termination panel may take the form of an Interconnect Assembly (ICA) made by manufacturers such as Virginia Panel or Macpanel. In either case, it is desirable to maintain the same I/O layout at the panel to avoid costly redesign of test fixturing or UUT cable assemblies.

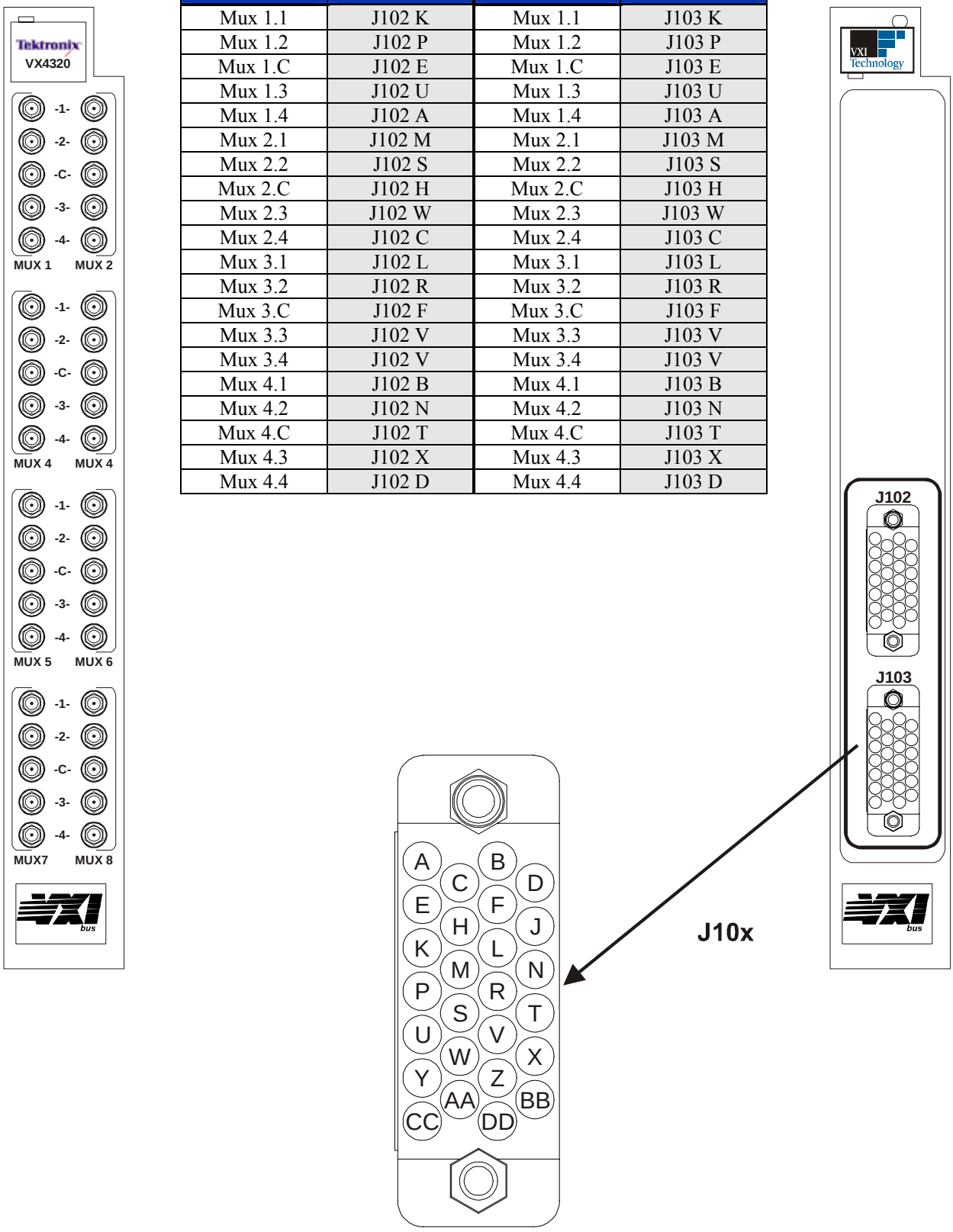
VXI Technology offers a couple of options that prevent the need for any interface panel to UUT redesign as follows:

- wired funnel assemblies that mate directly to the SM4320 front panel
- custom cabling between SM4320 front panel and ICA/termination panel

For customers who plan on developing their own cabling between the SM4320 and the termination panel, this section provides a cross-reference pinout table between the VX4320 and the SM4320 in Figure 9-1.

FIGURE 9-1: PINOUT CROSS-REFERENCE DIAGRAM & TABLE VX4320 TO SM4320

VX4320	SM4320	VX4320	SM4320
Mux 1.1	J102 K	Mux 1.1	J103 K
Mux 1.2	J102 P	Mux 1.2	J103 P
Mux 1.C	J102 E	Mux 1.C	J103 E
Mux 1.3	J102 U	Mux 1.3	J103 U
Mux 1.4	J102 A	Mux 1.4	J103 A
Mux 2.1	J102 M	Mux 2.1	J103 M
Mux 2.2	J102 S	Mux 2.2	J103 S
Mux 2.C	J102 H	Mux 2.C	J103 H
Mux 2.3	J102 W	Mux 2.3	J103 W
Mux 2.4	J102 C	Mux 2.4	J103 C
Mux 3.1	J102 L	Mux 3.1	J103 L
Mux 3.2	J102 R	Mux 3.2	J103 R
Mux 3.C	J102 F	Mux 3.C	J103 F
Mux 3.3	J102 V	Mux 3.3	J103 V
Mux 3.4	J102 V	Mux 3.4	J103 V
Mux 4.1	J102 B	Mux 4.1	J103 B
Mux 4.2	J102 N	Mux 4.2	J103 N
Mux 4.C	J102 T	Mux 4.C	J103 T
Mux 4.3	J102 X	Mux 4.3	J103 X
Mux 4.4	J102 D	Mux 4.4	J103 D



VXI*PLUG&PLAY* COMMON FUNCTION CALLS

Background

The VX4320 is part of the SurePath family of switch cards. As such, a SurePath controller card is required to communicate to this device. The SurePath controller card is installed in either the left-most switch card of a SurePath switching system or in a VX4101 MultiPaq instrument.

If the SurePath controller card is installed in a SurePath family switch, all calls made to a SurePath switch card are made through *tkvx43x0_32.dll*. If the SurePath controller is installed in a VX4101 MultiPaq device, then all function calls to a SurePath switch are made through the *tkmpscan_32.dll*. An example is shown below:

1. tkvx43x0_closeRelayVX4320 (id, "M1", 2, 3);

2. tkmpscan_closeRelayVX4320 (id, "M1", 2, 3);

Both function calls perform identical operations, in this case closing relay number 3 in section 2 on module M1, however, the first one is called if the VX4320 is part of a SurePath system where the controller card is installed in another switch card and the second one is called if the controller card is installed in a VX4101 MultiPaq device.

Rehosting

To replace obsolete components typically requires a great deal of software effort because there are often many test program sets that need to be changed. VXI Technology has greatly simplified this task by developing a translation driver set for the SurePath family. The translation driver takes Tektronix function calls, such as in the example above and converts them to SMIP *II* calls. The result is that any code written to operate with the VX4320 can be used, without modification, when an SM4320 is installed in its place. It is important to note that to use the translation driver, all cards that were part of the SurePath system must be replaced by equivalent SMIP *II* modules (i.e. Tektronix VXI switch cards and VTI switch cards cannot be in the same chassis when using the translation driver set).

All commonly used functions are supported in the translation driver set. For those functions not supported, VTI includes the translation driver source code for custom modification or will add the functions by request. A list of all tkvx43x0 functions related to the VX4320 supported in the translation driver set are listed in the following table. For *tkmpscan* supported functions, please refer to Section 7.4c, VX4101 SurePath Controller.

TABLE 9-1: TKVX43X0_32.DLL: SM4320 TRANSLATION DRIVER SET, SUPPORTED FUNCTIONS

Class or Window		Function
Initialize		tkvx43x0_init
Auto Initialize		tkvx43x0_autoConnectToFirst
Auto Initialize		tkvx43x0_autoConnectToSlot
Auto Initialize		tkvx43x0_autoConnectToLA
Auto Initialize		tkvx43x0_autoConnectToAll
Daughter Board		tkvx43x0_ID_slaveModules
Daughter Board		tkvx43x0_catalogModules
Daughter Board		tkvx43x0_moduleNames
Daughter Board		tkvx43x0_TTL_triggers
Daughter Board		tkvx43x0_status
Daughter Board	Querys	tkvx43x0_queryModuleNumber
Daughter Board	Querys	tkvx43x0_queryTTL_triggers
Daughter Board	Querys	tkvx43x0_queryStatusOperation
TKVX4320	Configure	tkvx43x0_closeRelayVX4320
TKVX4320	Configure	tkvx43x0_closeRelayList
TKVX4320	Configure	tkvx43x0_queryRelayVX4320
TKVX4320	Relay Delay	tkvx43x0_closeDelay
Utility	Error Handling	tkvx43x0_error_message
Utility	Error Handling	tkvx43x0_error_query
Utility		tkvx43x0_reset
Utility		tkvx43x0_self_test
Utility		tkvx43x0_revision_query
Utility		tkvx43x0_getSlotList
Utility		tkvx43x0_getSlotandLAList
Utility		tkvx43x0_getSlotNumber
Utility		tkvx43x0_getInstrDesc
Utility		tkvx43x0_getSlotandLAList
Utility		tkvx43x0_getManufacturerID
Utility		tkvx43x0_getModelCode
Utility		tkvx43x0_getVisaRev
Utility		tkvx43x0_sleep
Close		tkvx43x0_close

Exceptions

None

SECTION 10

VX4380 TO SM4380: 4 (4 x 16), 2 A

SPECIFICATION COMPARISONS

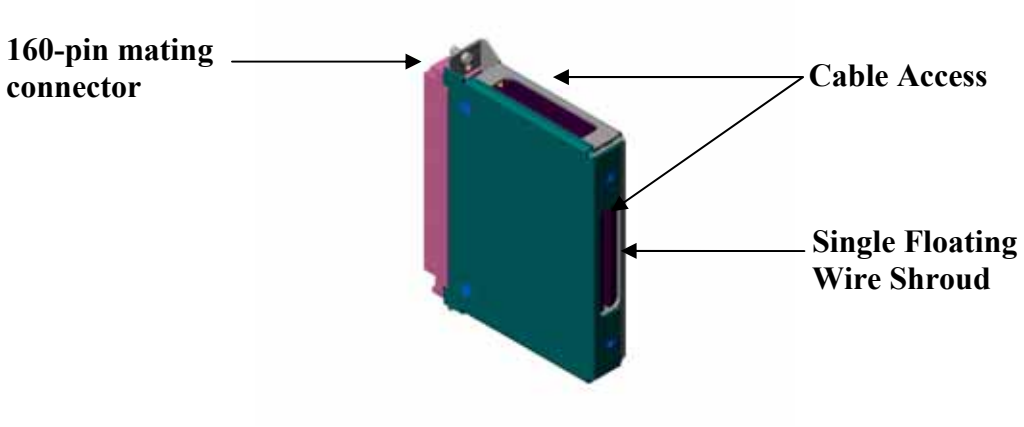
GENERAL SPECIFICATIONS	Tektronix VX4380	VXI Technology SM4380
MODEL TYPE	256 Crosspoint Matrix	256 Crosspoint Matrix
CONFIGURATION	4 (4 x 16) Matrices	4 (4 x 16) + 2 (4 x 4) Matrices
INTERFACE TYPE	Message Based, SCPI, IEEE 488.2	Register Based
VXI REVISION LEVEL	1.4	1.4
INSTRUMENT DRIVERS	WIN framework (Rev. 4.0) WIN95 framework (Rev. 4.0) WINNT framework (Rev. 4.0)	 WIN95 framework (Rev. 4.0) WINNT framework (Rev. 4.0)
RATED SWITCH OPERATIONS **Mechanical** **Electrical**	 1×10^8 1×10^5 (Full Load)	 1×10^7 5×10^5 (Full Load)
MODULE SIZE	Single-wide, C-size	Single-wide, C-size
POWER SPECIFICATIONS		
MAXIMUM SWITCHING VOLTAGE	250 V dc, 250 V ac rms	300 V dc, 300 V ac rms
MAXIMUM SWITCHING CURRENT	< 30 V, 2 A / channel	< 30 V, 2 A / channel
MAXIMUM SWITCHING POWER **DC** **AC**	 60 W / channel 125 VA / channel	 60 W / channel 125 VA / channel
DC PERFORMANCE		
PATH RESISTANCE	< 1.5 Ω	< 0.5 Ω
AC PERFORMANCE		
BANDWIDTH (-3 dB)	< 15 MHz	> 40 MHz
ISOLATION **100 kHz** **1 MHz** **10 MHz**	 < -60 dB < -40 dB Not Available	 < -80 dB < -60 dB < -30 dB
CROSSTALK **100 kHz** **1 MHz** **10 MHz**	 < -60 dB < -40 dB Not Available	 < -80 dB < -50 dB < -30 dB

INTERFACING TO THE MODULE

The SM4380 has two, 160-pin high density DIN connectors on its front panel for I/O interfacing. Mating connector and pin part numbers are referenced below. These parts can be ordered directly from VXI Technology or the manufacturer listed in the table.

ACCESSORIES			
52-0236-000: Connector Kit (Includes 160 Pin Connector & Retaining Hardware)			
Desc: Connector Kit	Mfgr.: VXI Tech.	Mfgr P/N: 52-0236-000	Contact Info: 949-955-1VXI/www.vxitech.com
Desc: Connector	Mfgr.: ERNI	Mfgr P/N: 024070	Contact Info: 804-530-5012/www.ernicomponents.com
Desc: Retaining Hardware	Mfgr.: VXI Tech.	Mfgr P/N: 41-0298-000	Contact Info: 949-955-1VXI/www.vxitech.com
52-0237-000: Strain Relief Brackets			
Desc: Strain Relief Brackets	Mfgr.: VXI Tech.	Mfgr P/N: 52-0237-000	Contact Info: 949-955-1VXI/www.vxitech.com
52-0110-000: 10-Pin Cable Assembly			
Desc: 6 ft. 24GA Teflon, 10 Crimp Pins	Mfgr.: VXI Tech.	Mfgr P/N: 52-0110-000	Contact Info: 949-955-1VXI/www.vxitech.com
52-0235-000: Floating Wire Shroud (Does Not Include Connector Pins)			
Desc: Floating Wire Shroud	Mfgr.: VXI Tech.	Mfgr P/N: 52-0235-000	Contact Info: 949-955-1VXI/www.vxitech.com
52-0109-001: Crimp Pins (500 per Reel)			
Desc: Crimp Pins	Mfgr.: ERNI	Mfgr P/N: 014729	Contact Info: 804-530-5012/www.ernicomponents.com
52-0109-000: Lose Crimp Pins (100 per Bag)			
Desc: Lose Crimp Pins	Mfgr.: VXI Tech.	Mfgr P/N: 52-0109-000	Contact Info: 949-955-1VXI/www.vxitech.com
46-0010-000: Crimp Tool			
Desc: Crimp Tool	Mfgr.: ERNI	Mfgr P/N: 014374	Contact Info: 804-530-5012/www.ernicomponents.com
46-0011-000: Extraction Tool			
Desc: Extraction Tool	Mfgr.: ERNI	Mfgr P/N: 471555	Contact Info: 804-530-5012/www.ernicomponents.com

The single floating wire shroud assembly is used to provide added strain relief. Refer to figure below.



In many ATE applications, a termination panel for the instrumentation is utilized. This termination panel will have connectors that mate to the UUT or an intermediate test fixture. A termination panel may take the form of an Interconnect Assembly (ICA) made by manufacturers such as Virginia Panel or Macpanel. In either case, it is desirable to maintain the same I/O layout at the panel to avoid costly redesign of test fixturing or UUT cable assemblies.

VXI Technology offers a couple of options that prevent the need for any interface panel to UUT redesign as follows:

- wired funnel assemblies that mate directly to the SM4380 front panel
- custom cabling between SM4380 front panel and ICA/termination panel

For customers who plan on developing their own cabling between the SM4380 and the termination panel, this section provides a cross-reference pinout table between the VX4380 and the SM4380 in Tables 10-1 and 10-2.

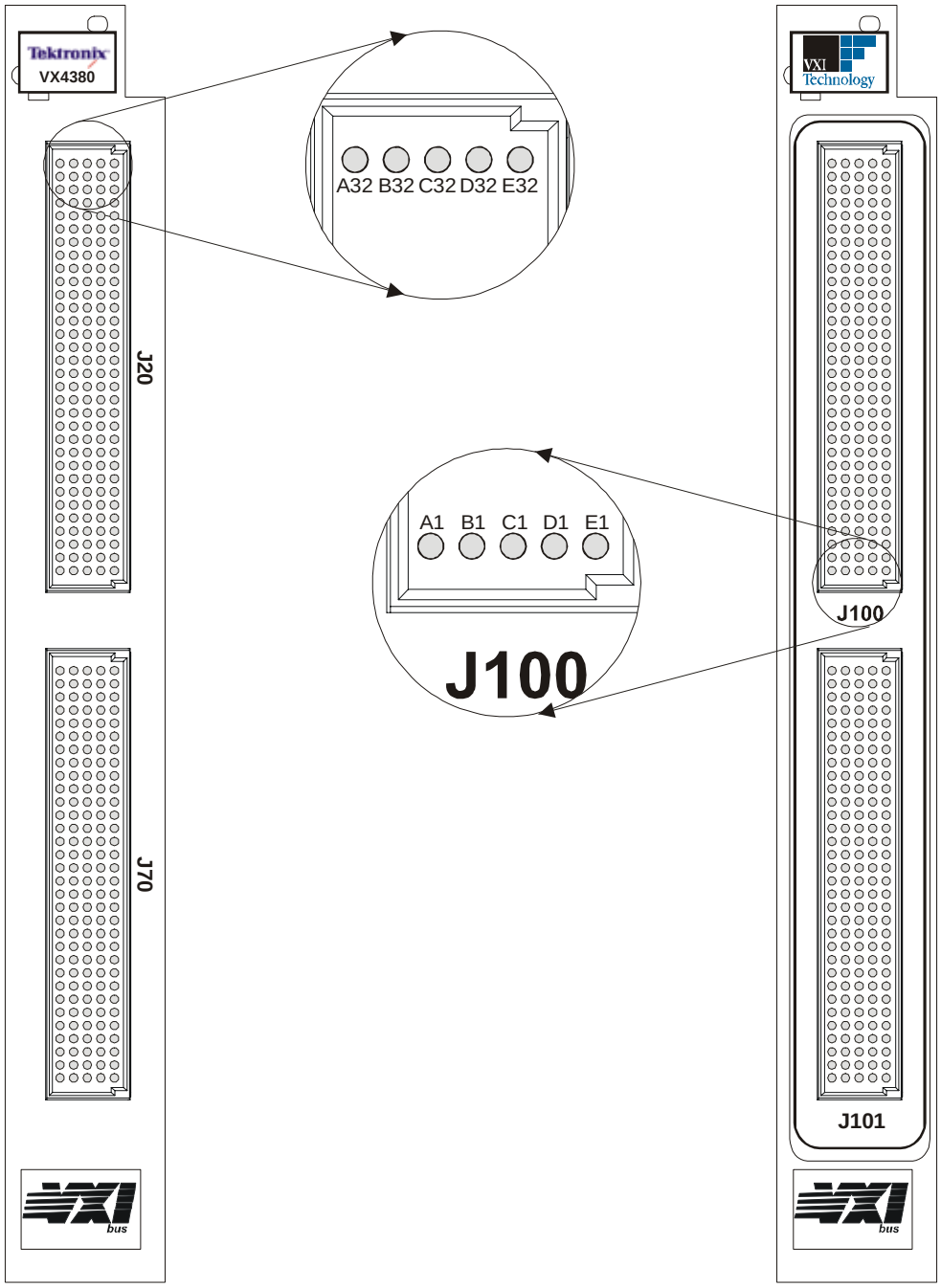


FIGURE 10-1: PINOUT CROSS-REFERENCE (FRONT PANEL DIAGRAM) VX4380 TO SM4380

TABLE 10-1: PINOUT CROSS-REFERENCE TABLE SM4380-02

VX4380 Upper Connector (J401) Pinout						
Pin	**a**	**b**	**c**	**d**	**e**	**Sect.**
32	C16Lo	C16Hi	Row1Lo	C16Hi	C16Lo	4
31	C15Lo	C15Hi	Row1Hi	C15Hi	C15Lo	4
30	C14Lo	C14Hi	Row2Lo	C14Hi	C14Lo	4
29	C13Lo	C13Hi	Row2Hi	C13Hi	C13Lo	4
28	C12Lo	C12Hi	Row3Lo	C12Hi	C12Lo	4
27	C11Lo	C11Hi	Row3Hi	C11Hi	C11Lo	4
26	C10Lo	C10Hi	Row4Lo	C10Hi	C10Lo	4
25	C9Lo	C9Hi	Row4Hi	C9Hi	C9Lo	4
24	C8Lo	C8Hi	Row4Hi	C8Hi	C8Lo	4
23	C7Lo	C7Hi	Row4Lo	C7Hi	C7Lo	4
22	C6Lo	C6Hi	Row3Hi	C6Hi	C6Lo	4
21	C5Lo	C5Hi	Row3Lo	C5Hi	C5Lo	4
20	C4Lo	C4Hi	Row2Hi	C4Hi	C4Lo	4
19	C3Lo	C3Hi	Row2Lo	C3Hi	C3Lo	4
18	C2Lo	C2Hi	Row1Hi	C2Hi	C2Lo	4
17	C1Lo	C1Hi	Row1Lo	C1Hi	C1Lo	4
16	C16Lo	C16Hi	Row1Lo	C16Hi	C16Lo	3
15	C15Lo	C15Hi	Row1Hi	C15Hi	C15Lo	3
14	C14Lo	C14Hi	Row2Lo	C14Hi	C14Lo	3
13	C13Lo	C13Hi	Row2Hi	C13Hi	C13Lo	3
12	C12Lo	C12Hi	Row3Lo	C12Hi	C12Lo	3
11	C11Lo	C11Hi	Row3Hi	C11Hi	C11Lo	3
10	C10Lo	C10Hi	Row4Lo	C10Hi	C10Lo	3
9	C9Lo	C9Hi	Row4Hi	C9Hi	C9Lo	3
8	C8Lo	C8Hi	Row4Hi	C8Hi	C8Lo	3
7	C7Lo	C7Hi	Row4Lo	C7Hi	C7Lo	3
6	C6Lo	C6Hi	Row3Hi	C6Hi	C6Lo	3
5	C5Lo	C5Hi	Row3Lo	C5Hi	C5Lo	3
4	C4Lo	C4Hi	Row2Hi	C4Hi	C4Lo	3
3	C3Lo	C3Hi	Row2Lo	C3Hi	C3Lo	3
2	C2Lo	C2Hi	Row1Hi	C2Hi	C2Lo	3
1	C1Lo	C1Hi	Row1Lo	C1Hi	C1Lo	3
Pin	**a**	**b**	**c**	**d**	**e**	

SM4380-02 Upper Connector (J100) Pinout						
Pin	**a**	**b**	**c**	**d**	**e**	**Sect.**
32	C15Lo	SHIELD	C16Lo	SHIELD		4
31	C15Hi	C14Lo	C16Hi			4
30	C13Lo	C14Hi			Row1Lo	4
29	C13Hi	C8Lo			Row1Hi	4
28	C7Lo	C8Hi			Row2Lo	4
27	C7Hi	C6Lo			Row2Hi	4
26	C5Lo	C6Hi			Row3Lo	4
25	C5Hi	C4Lo			Row3Hi	4
24	C3Lo	C4Hi			Row4Lo	4
23	C3Hi	C2Lo		SHIELD	Row4Hi	4
22	C1Lo	C2Hi	SHIELD	C12Lo	SHIELD	4
21	C1Hi	C10Lo	C11Lo	C12Hi	SHIELD	4
20	C9Lo	C10Hi	C11Hi		SHIELD	4
19	C9Hi				Row1Lo	4_3
18					Row1Hi	3
17					Row2Lo	3
16					Row2Hi	3
15		C8Lo			Row3Lo	3
14	C7Lo	C8Hi			Row3Hi	3
13	C7Hi	C6Lo			Row4Lo	3
12	C5Lo	C6Hi		SHIELD	Row4Hi	3
11	C5hi	C3Lo	SHIELD	C1Lo	SHIELD	3
10	C4Lo	C3Hi	C2Lo	C1Hi	SHIELD	3
9	C4Hi	C9Lo	C2Hi		SHIELD	3
8	C10Lo	C9Hi				3
7	C10Hi	C11Lo				3
6	C12Lo	C11Hi				3
5	C12Hi	C13Lo				3
4	C14Lo	C13Hi				3
3	C14Hi	C15Lo				3
2	C16Lo	C15Hi				3
1	C16Hi	SHIELD		SHIELD		3
Pin	**a**	**b**	**c**	**d**	**e**	

TABLE 10-1 PINOUT CROSS-REFERENCE TABLE SM4380-02 (CONT.)

VX4380 Lower Connector (J1201) Pinout						
Pin	**a**	**b**	**c**	**d**	**e**	**Sect.**
32	C16Lo	C16Hi	Row1Lo	C16Hi	C16Lo	2
31	C15Lo	C15Hi	Row1Hi	C15Hi	C15Lo	2
30	C14Lo	C14Hi	Row2Lo	C14Hi	C14Lo	2
29	C13Lo	C13Hi	Row2Hi	C13Hi	C13Lo	2
28	C12Lo	C12Hi	Row3Lo	C12Hi	C12Lo	2
27	C11Lo	C11Hi	Row3Hi	C11Hi	C11Lo	2
26	C10Lo	C10Hi	Row4Lo	C10Hi	C10Lo	2
25	C9Lo	C9Hi	Row4Hi	C9Hi	C9Lo	2
24	C8Lo	C8Hi	Row4Hi	C8Hi	C8Lo	2
23	C7Lo	C7Hi	Row4Lo	C7Hi	C7Lo	2
22	C6Lo	C6Hi	Row3Hi	C6Hi	C6Lo	2
21	C5Lo	C5Hi	Row3Lo	C5Hi	C5Lo	2
20	C4Lo	C4Hi	Row2Hi	C4Hi	C4Lo	2
19	C3Lo	C3Hi	Row2Lo	C3Hi	C3Lo	2
18	C2Lo	C2Hi	Row1Hi	C2Hi	C2Lo	2
17	C1Lo	C1Hi	Row1Lo	C1Hi	C1Lo	2
16	C16Lo	C16Hi	Row1Lo	C16Hi	C16Lo	1
15	C15Lo	C15Hi	Row1Hi	C15Hi	C15Lo	1
14	C14Lo	C14Hi	Row2Lo	C14Hi	C14Lo	1
13	C13Lo	C13Hi	Row2Hi	C13Hi	C13Lo	1
12	C12Lo	C12Hi	Row3Lo	C12Hi	C12Lo	1
11	C11Lo	C11Hi	Row3Hi	C11Hi	C11Lo	1
10	C10Lo	C10Hi	Row4Lo	C10Hi	C10Lo	1
9	C9Lo	C9Hi	Row4Hi	C9Hi	C9Lo	1
8	C8Lo	C8Hi	Row4Hi	C8Hi	C8Lo	1
7	C7Lo	C7Hi	Row4Lo	C7Hi	C7Lo	1
6	C6Lo	C6Hi	Row3Hi	C6Hi	C6Lo	1
5	C5Lo	C5Hi	Row3Lo	C5Hi	C5Lo	1
4	C4Lo	C4Hi	Row2Hi	C4Hi	C4Lo	1
3	C3Lo	C3Hi	Row2Lo	C3Hi	C3Lo	1
2	C2Lo	C2Hi	Row1Hi	C2Hi	C2Lo	1
1	C1Lo	C1Hi	Row1Lo	C1Hi	C1Lo	1
Pin	**a**	**b**	**c**	**d**	**e**	

SM4380-02 Lower Connector (J101) Pinout						
Pin	**a**	**b**	**c**	**d**	**e**	**Sect.**
32	C15Lo	SHIELD	C16Lo	SHIELD		2
31	C15Hi	C14Lo	C16Hi			2
30	C13Lo	C14Hi			Row1Lo	2
29	C13Hi	C8Lo			Row1Hi	2
28	C7Lo	C8Hi			Row2Lo	2
27	C7Hi	C6Lo			Row2Hi	2
26	C5Lo	C6Hi			Row3Lo	2
25	C5Hi	C4Lo			Row3Hi	2
24	C3Lo	C4Hi			Row4Lo	2
23	C3Hi	C2Lo		SHIELD	Row4Hi	2
22	C1Lo	C2Hi	SHIELD	C12Lo	SHIELD	2
21	C1Hi	C10Lo	C11Lo	C12Hi	SHIELD	2
20	C9Lo	C10Hi	C11Hi		SHIELD	2
19	C9Hi				Row1Lo	2_1
18					Row1Hi	1
17					Row2Lo	1
16					Row2Hi	1
15		C8Lo			Row3Lo	1
14	C7Lo	C8Hi			Row3Hi	1
13	C7Hi	C6Lo			Row4Lo	1
12	C5Lo	C6Hi		SHIELD	Row4Hi	1
11	C5hi	C3Lo	SHIELD	C1Lo	SHIELD	1
10	C4Lo	C3Hi	C2Lo	C1Hi	SHIELD	1
9	C4Hi	C9Lo	C2Hi		SHIELD	1
8	C10Lo	C9Hi				1
7	C10Hi	C11Lo				1
6	C12Lo	C11Hi				1
5	C12Hi	C13Lo				1
4	C14Lo	C13Hi				1
3	C14Hi	C15Lo				1
2	C16Lo	C15Hi				1
1	C16Hi	SHIELD		SHIELD		1
Pin	**a**	**b**	**c**	**d**	**e**	

NOTE	**There is no physical connection between the upper and lower connector of the SM4380-02, effectively yielding two separate 4 x 32 matrices. To create a 4 x 64 matrix, the following row pins must be jumpered together externally:**

Row 1Hi	J100.E18	**TO**	J101.E18		Row 3Hi	J100.E14	**TO**	J101.E14
Row 1Lo	J100.E19	**TO**	J101.E19		Row 3Lo	J100.E15	**TO**	J101.E15
Row 2Hi	J100.E16	**TO**	J101.E16		Row 4Hi	J100.E12	**TO**	J101.E12
Row 2Lo	J100.E17	**TO**	J101.E17		Row 4Lo	J100.E13	**TO**	J101.E13

TABLE 10-2: PINOUT CROSS-REFERENCE TABLE SM4380-03

VX4380 Upper Connector (J401) Pinout						
Pin	**a**	**b**	**c**	**d**	**e**	**Sect.**
32	C16Lo	C16Hi	Row1Lo	C16Hi	C16Lo	4
31	C15Lo	C15Hi	Row1Hi	C15Hi	C15Lo	4
30	C14Lo	C14Hi	Row2Lo	C14Hi	C14Lo	4
29	C13Lo	C13Hi	Row2Hi	C13Hi	C13Lo	4
28	C12Lo	C12Hi	Row3Lo	C12Hi	C12Lo	4
27	C11Lo	C11Hi	Row3Hi	C11Hi	C11Lo	4
26	C10Lo	C10Hi	Row4Lo	C10Hi	C10Lo	4
25	C9Lo	C9Hi	Row4Hi	C9Hi	C9Lo	4
24	C8Lo	C8Hi	Row4Hi	C8Hi	C8Lo	4
23	C7Lo	C7Hi	Row4Lo	C7Hi	C7Lo	4
22	C6Lo	C6Hi	Row3Hi	C6Hi	C6Lo	4
21	C5Lo	C5Hi	Row3Lo	C5Hi	C5Lo	4
20	C4Lo	C4Hi	Row2Hi	C4Hi	C4Lo	4
19	C3Lo	C3Hi	Row2Lo	C3Hi	C3Lo	4
18	C2Lo	C2Hi	Row1Hi	C2Hi	C2Lo	4
17	C1Lo	C1Hi	Row1Lo	C1Hi	C1Lo	4
16	C16Lo	C16Hi	Row1Lo	C16Hi	C16Lo	3
15	C15Lo	C15Hi	Row1Hi	C15Hi	C15Lo	3
14	C14Lo	C14Hi	Row2Lo	C14Hi	C14Lo	3
13	C13Lo	C13Hi	Row2Hi	C13Hi	C13Lo	3
12	C12Lo	C12Hi	Row3Lo	C12Hi	C12Lo	3
11	C11Lo	C11Hi	Row3Hi	C11Hi	C11Lo	3
10	C10Lo	C10Hi	Row4Lo	C10Hi	C10Lo	3
9	C9Lo	C9Hi	Row4Hi	C9Hi	C9Lo	3
8	C8Lo	C8Hi	Row4Hi	C8Hi	C8Lo	3
7	C7Lo	C7Hi	Row4Lo	C7Hi	C7Lo	3
6	C6Lo	C6Hi	Row3Hi	C6Hi	C6Lo	3
5	C5Lo	C5Hi	Row3Lo	C5Hi	C5Lo	3
4	C4Lo	C4Hi	Row2Hi	C4Hi	C4Lo	3
3	C3Lo	C3Hi	Row2Lo	C3Hi	C3Lo	3
2	C2Lo	C2Hi	Row1Hi	C2Hi	C2Lo	3
1	C1Lo	C1Hi	Row1Lo	C1Hi	C1Lo	3
Pin	**a**	**b**	**c**	**d**	**e**	

SM4380-03 Upper Connector (J100) Pinout						
Pin	**a**	**b**	**c**	**d**	**e**	**Sect.**
32	C15Lo	SHIELD	C16Lo	SHIELD		4
31	C15Hi	C14Lo	C16Hi			4
30	C13Lo	C14Hi			Row1Lo	4
29	C13Hi	C8Lo			Row1Hi	4
28	C7Lo	C8Hi			Row2Lo	4
27	C7Hi	C6Lo			Row2Hi	4
26	C5Lo	C6Hi			Row3Lo	4
25	C5Hi	C4Lo			Row3Hi	4
24	C3Lo	C4Hi			Row4Lo	4
23	C3Hi	C2Lo		SHIELD	Row4Hi	4
22	C1Lo	C2Hi	SHIELD	C12Lo	SHIELD	4
21	C1Hi	C10Lo	C11Lo	C12Hi	SHIELD	4
20	C9Lo	C10Hi	C11Hi		SHIELD	4
19	C9Hi				Row1Lo	4_3
18					Row1Hi	3
17					Row2Lo	3
16					Row2Hi	3
15		C8Lo			Row3Lo	3
14	C7Lo	C8Hi			Row3Hi	3
13	C7Hi	C6Lo			Row4Lo	3
12	C5Lo	C6Hi		SHIELD	Row4Hi	3
11	C5hi	C3Lo	SHIELD	C1Lo	SHIELD	3
10	C4Lo	C3Hi	C2Lo	C1Hi	SHIELD	3
9	C4Hi	C9Lo	C2Hi		SHIELD	3
8	C10Lo	C9Hi				3
7	C10Hi	C11Lo				3
6	C12Lo	C11Hi				3
5	C12Hi	C13Lo				3
4	C14Lo	C13Hi				3
3	C14Hi	C15Lo				3
2	C16Lo	C15Hi				3
1	C16Hi	SHIELD		SHIELD		3
Pin	**a**	**b**	**c**	**d**	**e**	

TABLE 10-2 PINOUT CROSS-REFERENCE TABLE SM4380-03 (CONT.)

VX4380 Lower Connector (J1201) Pinout						
Pin	**a**	**b**	**c**	**d**	**e**	**Sect.**
32	C16Lo	C16Hi	Row1Lo	C16Hi	C16Lo	2
31	C15Lo	C15Hi	Row1Hi	C15Hi	C15Lo	2
30	C14Lo	C14Hi	Row2Lo	C14Hi	C14Lo	2
29	C13Lo	C13Hi	Row2Hi	C13Hi	C13Lo	2
28	C12Lo	C12Hi	Row3Lo	C12Hi	C12Lo	2
27	C11Lo	C11Hi	Row3Hi	C11Hi	C11Lo	2
26	C10Lo	C10Hi	Row4Lo	C10Hi	C10Lo	2
25	C9Lo	C9Hi	Row4Hi	C9Hi	C9Lo	2
24	C8Lo	C8Hi	Row4Hi	C8Hi	C8Lo	2
23	C7Lo	C7Hi	Row4Lo	C7Hi	C7Lo	2
22	C6Lo	C6Hi	Row3Hi	C6Hi	C6Lo	2
21	C5Lo	C5Hi	Row3Lo	C5Hi	C5Lo	2
20	C4Lo	C4Hi	Row2Hi	C4Hi	C4Lo	2
19	C3Lo	C3Hi	Row2Lo	C3Hi	C3Lo	2
18	C2Lo	C2Hi	Row1Hi	C2Hi	C2Lo	2
17	C1Lo	C1Hi	Row1Lo	C1Hi	C1Lo	2
16	C16Lo	C16Hi	Row1Lo	C16Hi	C16Lo	1
15	C15Lo	C15Hi	Row1Hi	C15Hi	C15Lo	1
14	C14Lo	C14Hi	Row2Lo	C14Hi	C14Lo	1
13	C13Lo	C13Hi	Row2Hi	C13Hi	C13Lo	1
12	C12Lo	C12Hi	Row3Lo	C12Hi	C12Lo	1
11	C11Lo	C11Hi	Row3Hi	C11Hi	C11Lo	1
10	C10Lo	C10Hi	Row4Lo	C10Hi	C10Lo	1
9	C9Lo	C9Hi	Row4Hi	C9Hi	C9Lo	1
8	C8Lo	C8Hi	Row4Hi	C8Hi	C8Lo	1
7	C7Lo	C7Hi	Row4Lo	C7Hi	C7Lo	1
6	C6Lo	C6Hi	Row3Hi	C6Hi	C6Lo	1
5	C5Lo	C5Hi	Row3Lo	C5Hi	C5Lo	1
4	C4Lo	C4Hi	Row2Hi	C4Hi	C4Lo	1
3	C3Lo	C3Hi	Row2Lo	C3Hi	C3Lo	1
2	C2Lo	C2Hi	Row1Hi	C2Hi	C2Lo	1
1	C1Lo	C1Hi	Row1Lo	C1Hi	C1Lo	1
Pin	**a**	**b**	**c**	**d**	**e**	

SM4380-03 Lower Connector (J101) Pinout						
Pin	**a**	**b**	**c**	**d**	**e**	**Sect.**
32	C15Lo	SHIELD	C16Lo	SHIELD		2
31	C15Hi	C14Lo	C16Hi			2
30	C13Lo	C14Hi			Row1Lo	2
29	C13Hi	C8Lo			Row1Hi	2
28	C7Lo	C8Hi			Row2Lo	2
27	C7Hi	C6Lo			Row2Hi	2
26	C5Lo	C6Hi			Row3Lo	2
25	C5Hi	C4Lo			Row3Hi	2
24	C3Lo	C4Hi			Row4Lo	2
23	C3Hi	C2Lo		SHIELD	Row4Hi	2
22	C1Lo	C2Hi	SHIELD	C12Lo	SHIELD	2
21	C1Hi	C10Lo	C11Lo	C12Hi	SHIELD	2
20	C9Lo	C10Hi	C11Hi		SHIELD	2
19	C9Hi				Row1Lo	2_1
18					Row1Hi	1
17					Row2Lo	1
16					Row2Hi	1
15		C8Lo			Row3Lo	1
14	C7Lo	C8Hi			Row3Hi	1
13	C7Hi	C6Lo			Row4Lo	1
12	C5Lo	C6Hi		SHIELD	Row4Hi	1
11	C5hi	C3Lo	SHIELD	C1Lo	SHIELD	1
10	C4Lo	C3Hi	C2Lo	C1Hi	SHIELD	1
9	C4Hi	C9Lo	C2Hi		SHIELD	1
8	C10Lo	C9Hi				1
7	C10Hi	C11Lo				1
6	C12Lo	C11Hi				1
5	C12Hi	C13Lo				1
4	C14Lo	C13Hi				1
3	C14Hi	C15Lo				1
2	C16Lo	C15Hi				1
1	C16Hi	SHIELD		SHIELD		1
Pin	**a**	**b**	**c**	**d**	**e**	

NOTE These pinout tables show the layout for the (4) 4 x 16 matrix pins. Please contact the factory for the layout of the two additional 4 x 4 matrices.

VXI*PLUG&PLAY* COMMON FUNCTION CALLS

Background

The VX4380 is part of the SurePath family of switch cards. As such, a SurePath controller card is required to communicate to this device. The SurePath controller card is installed in either the left-most switch card of a SurePath switching system or in a VX4101 MultiPaq instrument.

If the SurePath controller card is installed in a SurePath family switch, all calls made to a SurePath switch card are made through *tkvx43x0_32.dll*. If the SurePath controller is installed in a VX4101 MultiPaq device, then all function calls to a SurePath switch are made through the *tkmpscan_32.dll*. An example is shown below:

1. tkvx43x0_closeRelayVX4380 (id, "M1", 3, 5, 2);

2. tkmpscan_closeRelayVX4380 (id, "M1", 3, 5, 2);

Both function calls perform identical operations, in this case closing the relay in Section 3, column 5, row 2 on module M1, however, the first one is called if the VX4380 is part of a SurePath system where the controller card is installed in another switch card and the second one is called if the controller card is installed in a VX4101 MultiPaq device.

Rehosting

To replace obsolete components typically requires a great deal of software effort because there are often many test program sets that need to be changed. VXI Technology has greatly simplified this task by developing a translation driver set for the SurePath family. The translation driver takes Tektronix function calls, such as in the example above and converts them to SMIP *II* calls. The result is that any code written to operate with the VX4380 can be used, without modification, when an SM4380 is installed in its place. It is important to note that to use the translation driver, all cards that were part of the SurePath system must be replaced by equivalent SMIP *II* modules (i.e. Tektronix VXI switch cards and VTI switch cards cannot be in the same chassis when using the translation driver set).

All commonly used functions are supported in the translation driver set. For those functions not supported, VTI includes the translation driver source code for custom modification or will add the functions by request. A list of all *tkvx43x0* functions related to the VX4380 supported in the translation driver set are listed in the following table. For *tkmpscan* supported functions, please refer to Section 7.4c, VX4101 SurePath Controller.

TABLE 10-3: TKVX43X0_32.DLL: SM4380 TRANSLATION DRIVER SET, SUPPORTED FUNCTIONS

Class or Window		Function
Initialize		tkvx43x0_init
Auto Initialize		tkvx43x0_autoConnectToFirst
Auto Initialize		tkvx43x0_autoConnectToSlot
Auto Initialize		tkvx43x0_autoConnectToLA
Auto Initialize		tkvx43x0_autoConnectToAll
Daughter Board		tkvx43x0_ID_slaveModules
Daughter Board		tkvx43x0_catalogModules
Daughter Board		tkvx43x0_moduleNames
Daughter Board		tkvx43x0_TTL_triggers
Daughter Board		tkvx43x0_status
Daughter Board	Querys	tkvx43x0_queryModuleNumber
Daughter Board	Querys	tkvx43x0_queryTTL_triggers
Daughter Board	Querys	tkvx43x0_queryStatusOperation
TKVX4380	Configure	tkvx43x0_closeRelayVX4380
TKVX4380	Configure	tkvx43x0_closeRelayList
TKVX4380	Configure	tkvx43x0_openRelayVX4380
TKVX4380	Configure	tkvx43x0_openRelayList
TKVX4380	Configure	tkvx43x0_queryRelayVX4380
TKVX4380	Configure	tkvx43x0_openAll
TKVX4380	Scan	tkvx43x0_scan
TKVX4380	Scan	tkvx43x0_abort
TKVX4380	Scan	tkvx43x0_triggerStatusSetting
TKVX4380	Scan	tkvx43x0_triggerSetup
TKVX4380	Scan	tkvx43x0_trigger
TKVX4380	Relay Delay	tkvx43x0_closeDelay
TKVX4380	Relay Delay	tkvx43x0_openDelay
Utility	Error Handling	tkvx43x0_error_message
Utility	Error Handling	tkvx43x0_error_query
Utility		tkvx43x0_reset
Utility		tkvx43x0_self_test
Utility		tkvx43x0_revision_query
Utility		tkvx43x0_getSlotList
Utility		tkvx43x0_getSlotandLAList
Utility		tkvx43x0_getSlotNumber
Utility		tkvx43x0_getInstrDesc
Utility		tkvx43x0_getSlotandLAList
Utility		tkvx43x0_getManufacturerID
Utility		tkvx43x0_getModelCode
Utility		tkvx43x0_getVisaRev
Utility		tkvx43x0_sleep
Close		tkvx43x0_close

Exceptions

1.) tkvx43x0_powerFailure is not supported. If called, this function will return an error. The SM4380 uses non-latching relays and all relays will return to their default state if power is removed from the chassis.

SECTION 11

VX4330 TO SM4330: 120 CHANNEL, 2 A

SPECIFICATION COMPARISONS

Note	The information provided in this section is specific to the ***SM4330***. The ***SM4330A*** provides a *pin-to-pin replica* of the Tektronix VM4350 and is presented in ***Section 2***.

GENERAL SPECIFICATIONS	Tektronix VX4330	VXI Technology SM4330
MODEL TYPE	120 Channel Scanner/Mux Module	120 Channel Scanner/Mux Module
CONFIGURATION**	240 channel 1-wire 120 channel 2-wire 60 channel 4-wire	256 channel 1-wire 128 channel 2-wire 64 channel 4-wire
INTERFACE TYPE	Message Based, SCPI, IEEE 488.2	Register Based
VXI REVISION LEVEL	1.4	1.4
INSTRUMENT DRIVERS	WIN framework (Rev. 4.0) WIN95 framework (Rev. 4.0) WINNT framework (Rev. 4.0)	 WIN95 framework (Rev. 4.0) WINNT framework (Rev. 4.0)
RATED SWITCH OPERATIONS		
Mechanical	1×10^8	5×10^7
Electrical	1×10^5 (Full Load)	5×10^5 (Full Load)
SCANNING RATE	125 cycles/s	> 300 cycles/s
MODULE SIZE	Single-wide, C-size	Single-wide, C-size
POWER SPECIFICATIONS		
MAXIMUM SWITCHING VOLTAGE	250 V dc or 250 V ac rms	300 V dc, 300 V ac
MAXIMUM SWITCHING CURRENT	< 30 V, 2 A / channel	< 30 V, 2 A / channel
MAXIMUM SWITCHING POWER		
DC	60 W / channel	60 W / channel
AC	125 VA / channel	125 VA / channel
DC PERFORMANCE		
PATH RESISTANCE	< 1.5 Ω	< 0.5 Ω
INSULATION RESISTANCE	> 1×10^7 Ω	> 1×10^9 Ω
AC PERFORMANCE		
BANDWIDTH (-3 dB)	> 10 MHz	> 40 MHz
CROSSTALK		
100 kHz	< -80 dB	< -90 dB
1 MHz	< -50 dB	< -70 dB
10 MHz	Not Available	< -50 dB

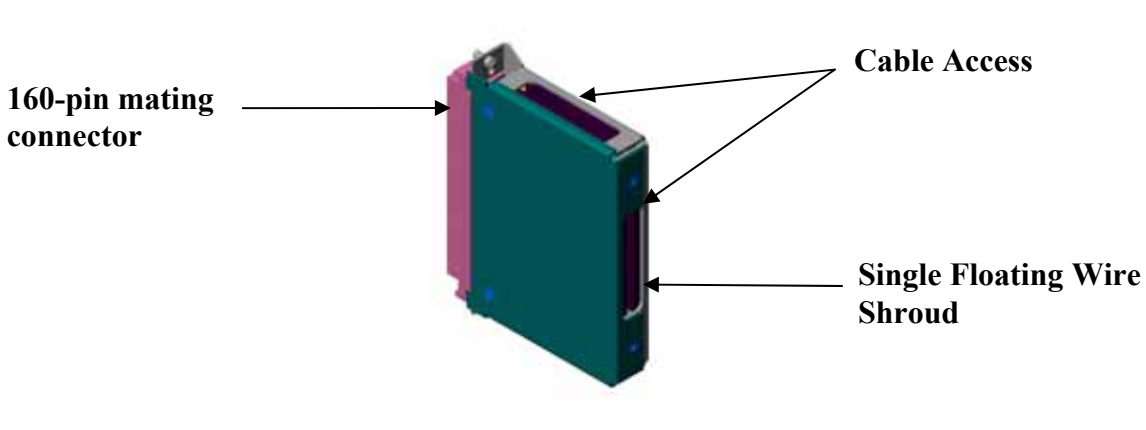
NOTE**	The VX4330 and SM4330 are configured using different 'building blocks'. For example, in 2-wire mode, the VX4330 is sectioned off in six groups of 1 x 20, and these sections (or groups) can be joined to form larger scanners, up to 120 channels. In 2-wire mode, the SM4330 is sectioned off in four groups of 1 x 20 and two groups of 1 x 16. Groups 1, 2, 4 and 5 are the 1 x 20 groups. Sections 3 and 6 are the 1x16 groups. These sections can be joined under program control to form larger scanners, up to 120 channels. Because the VX4330 groups are 1 x 20 and the SM4330 groups are really 1 x 8, the SM4330 channel configurations vary, depending on the number of groups joined. The standard configurations are: 'no groups joined', 'groups 1 & 2 (and/or 4 & 5) joined' and 'groups 1, 2 & 3 (and/or 4, 5 & 6) joined'. Channel pin assignments for the various configurations are detailed on the following pages.

INTERFACING TO THE MODULE

The SM4330 has two, 160-pin high density DIN connectors on its front panel for I/O interfacing. Mating connector and pin part numbers are referenced below. These parts can be ordered directly from VXI Technology or the manufacturer listed in the table.

ACCESSORIES			
52-0236-000: Connector Kit (Includes 160 Pin Connector & Retaining Hardware)			
Desc: Connector Kit	Mfgr.: VXI Tech.	Mfgr P/N: 52-0236-000	Contact Info: 949-955-1VXI/www.vxitech.com
Desc: Connector	Mfgr.: ERNI	Mfgr P/N: 024070	Contact Info: 804-530-5012/www.ernicomponents.com
Desc: Retaining Hardware	Mfgr.: VXI Tech.	Mfgr P/N: 41-0298-000	Contact Info: 949-955-1VXI/www.vxitech.com
52-0237-000: Strain Relief Brackets			
Desc: Strain Relief Brackets	Mfgr.: VXI Tech.	Mfgr P/N: 52-0237-000	Contact Info: 949-955-1VXI/www.vxitech.com
52-0110-000: 10-Pin Cable Assembly			
Desc: 6 ft. 24GA Teflon, 10 Crimp Pins	Mfgr.: VXI Tech.	Mfgr P/N: 52-0110-000	Contact Info: 949-955-1VXI/www.vxitech.com
52-0235-000: Floating Wire Shroud (Does Not Include Connector Pins)			
Desc: Floating Wire Shroud	Mfgr.: VXI Tech.	Mfgr P/N: 52-0235-000	Contact Info: 949-955-1VXI/www.vxitech.com
52-0109-001: Crimp Pins (500 per Reel)			
Desc: Crimp Pins	Mfgr.: ERNI	Mfgr P/N: 014729	Contact Info: 804-530-5012/www.ernicomponents.com
52-0109-000: Lose Crimp Pins (100 per Bag)			
Desc: Lose Crimp Pins	Mfgr.: VXI Tech.	Mfgr P/N: 52-0109-000	Contact Info: 949-955-1VXI/www.vxitech.com
46-0010-000: Crimp Tool			
Desc: Crimp Tool	Mfgr.: ERNI	Mfgr P/N: 014374	Contact Info: 804-530-5012/www.ernicomponents.com
46-0011-000: Extraction Tool			
Desc: Extraction Tool	Mfgr.: ERNI	Mfgr P/N: 471555	Contact Info: 804-530-5012/www.ernicomponents.com

The single floating wire shroud assembly is used to provide added strain relief. Refer to figure below.



In many ATE applications, a termination panel for the instrumentation is utilized. This termination panel will have connectors that mate to the UUT or an intermediate test fixture. A termination panel may take the form of an Interconnect Assembly (ICA) made by manufacturers such as Virginia Panel or Macpanel. In either case, it is desirable to maintain the same I/O layout at the panel to avoid costly redesign of test fixturing or UUT cable assemblies.

VXI Technology offers a couple of options that prevent the need for any interface panel to UUT redesign as follows:

- wired funnel assemblies that mate directly to the SM4330 front panel
- custom cabling between SM4330 front panel and ICA/termination panel

For customers who plan on developing their own cabling between the SM4330 and the termination panel, this section provides a cross-reference pinout table between the VX4330 and the SM4330 in Table 11-1 through Table 11-18.

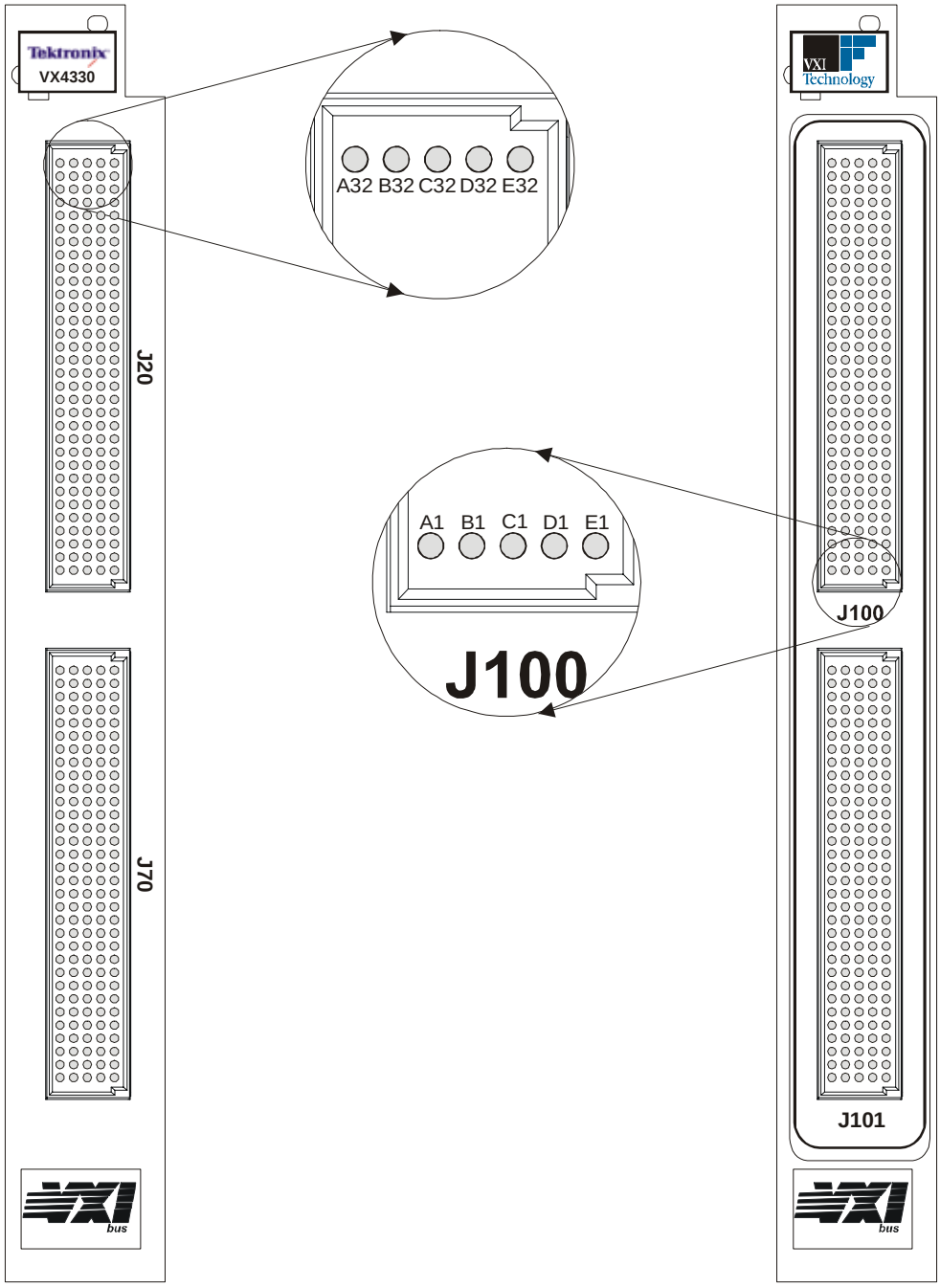


FIGURE 11-1: PINOUT CROSS-REFERENCE (FRONT PANEL DIAGRAM) VX4330 TO SM4330

ONE WIRE MODE, NO SECTIONS JOINED, UPPER CONNECTORS

VX4330 Upper Connector (J401) Pinout						
Pin	**a**	**b**	**c**	**d**	**e**	**Sect.**
32	Enc_4b	GND	Enc_5b	GND	Enc_6b	4,5,6
31	Enc_4a	GND	Enc_5a	GND	Enc_6a	4,5,6
30	C19	C20	1W6aR	C39	C40	6
29	C15	C16	1W6a	C35	C36	6
28	C11	C12	Com6bHR	C31	C32	6
27	C07	C08	Com6bLR	C27	C28	6
26	C03	C04	Com6aHR	C23	C24	6
25	C17	C18	Com6aLR	C37	C38	6
24	C13	C14	Com6bH	C33	C34	6
23	C09	C10	Com6bL	C29	C30	6
22	C05	C06	Com6aH	C25	C26	6
21	C01	C02	Com6aL	C21	C22	6
20	C19	C20	1W5aR	C39	C40	5
19	C15	C16	1W5a	C35	C36	5
18	C11	C12	Com5bHR	C31	C32	5
17	C07	C08	Com5bLR	C27	C28	5
16	C03	C04	Com5aHR	C23	C24	5
15	C17	C18	Com5aLR	C37	C38	5
14	C13	C14	Com5bH	C33	C34	5
13	C09	C10	Com5bL	C29	C30	5
12	C05	C06	Com5aH	C25	C26	5
11	C01	C02	Com5aL	C21	C22	5
10	C19	C20	1W4aR	C39	C40	4
9	C15	C16	1W4a	C35	C36	4
8	C11	C12	Com4bHR	C31	C32	4
7	C07	C08	Com4bLR	C27	C28	4
6	C03	C04	Com4aHR	C23	C24	4
5	C17	C18	Com4aLR	C37	C38	4
4	C13	C14	Com4bH	C33	C34	4
3	C09	C10	Com4bL	C29	C30	4
2	C05	C06	Com4aH	C25	C26	4
1	C01	C02	Com4aL	C21	C22	4
Pin	**a**	**b**	**c**	**d**	**e**	**Sect.**

SM4330 Upper Connector (J100) Pinout						
Pin	**a**	**b**	**c**	**d**	**e**	**Sect.**
32	C25	C27	C29	C31	FP_GND	6
31	C26	C28	C30	C32	FP_OPN	6
30	DNU	C17	C19	C21	C23	6
29	DNU	C18	C20	C22	C24	6
28	Com6	C09	C11	C13	C15	6
27	C07	C10	C12	C14	C16	6
26	C08	DNU	C01	C03	C05	6
25	Com6	DNU	C02	C04	C06	6
24	C39	DNU	DNU	DNU	DNU	5
23	C40	DNU	DNU	DNU	DNU	5
22	Shield	DNU	C33	C35	C37	5
21	Com5	DNU	C34	C36	C38	5
20	C23	C25	C27	C29	C31	5
19	C24	C26	C28	C30	C32	5
18	Shield	DNU	C17	C19	C21	5
17	Com5	DNU	C18	C20	C22	5
16	C07	C09	C11	C13	C15	5
15	C08	C10	C12	C14	C16	5
14	Shield	DNU	C01	C03	C05	5
13	Com5	DNU	C02	C04	C06	5
12	C39	DNU	DNU	DNU	DNU	4
11	C40	DNU	DNU	DNU	DNU	4
10	Shield	DNU	C33	C35	C37	4
9	Com4	DNU	C34	C36	C38	4
8	C23	C25	C27	C29	C31	4
7	C24	C26	C28	C30	C32	4
6	Shield	DNU	C17	C19	C21	4
5	Com4	DNU	C18	C20	C22	4
4	C07	C09	C11	C13	C15	4
3	C08	C10	C12	C14	C16	4
2	Shield	DNU	C01	C03	C05	4
1	Com4	DNU	C02	C04	C06	4
Pin	**a**	**b**	**c**	**d**	**e**	**Sect.**

DNU = DO NOT USE

TABLE 11-1: VX4330 UPPER CONNECTOR (J401) TO SM4330 UPPER CONNECTOR (J100) CROSS-REFERENCE PINOUT

ONE WIRE MODE, NO SECTIONS JOINED, LOWER CONNECTORS

VX4330 Lower Connector (J1201) Pinout						
Pin	**a**	**b**	**c**	**d**	**e**	**Sect.**
32	Enc_1b	GND	Enc_2b	GND	Enc_3b	1,2,3
31	Enc_1a	GND	Enc_2a	GND	Enc_3a	1,2,3
30	C19	C20	1W3aR	C39	C40	3
29	C15	C16	1W3a	C35	C36	3
28	C11	C12	Com3bHR	C31	C32	3
27	C07	C08	Com3bLR	C27	C28	3
26	C03	C04	Com3aHR	C23	C24	3
25	C17	C18	Com3aLR	C37	C38	3
24	C13	C14	Com3bH	C33	C34	3
23	C09	C10	Com3bL	C29	C30	3
22	C05	C06	Com3aH	C25	C26	3
21	C01	C02	Com3aL	C21	C22	3
20	C19	C20	1W2aR	C39	C40	2
19	C15	C16	1W2a	C35	C36	2
18	C11	C12	Com2bHR	C31	C32	2
17	C07	C08	Com2bLR	C27	C28	2
16	C03	C04	Com2aHR	C23	C24	2
15	C17	C18	Com2aLR	C37	C38	2
14	C13	C14	Com2bH	C33	C34	2
13	C09	C10	Com2bL	C29	C30	2
12	C05	C06	Com2aH	C25	C26	2
11	C01	C02	Com2aL	C21	C22	2
10	C19	C20	1W1aR	C39	C40	1
9	C15	C16	1W1a	C35	C36	1
8	C11	C12	Com1bHR	C31	C32	1
7	C07	C08	Com1bLR	C27	C28	1
6	C03	C04	Com1aHR	C23	C24	1
5	C17	C18	Com1aLR	C37	C38	1
4	C13	C14	Com1bH	C33	C34	1
3	C09	C10	Com1bL	C29	C30	1
2	C05	C06	Com1aH	C25	C26	1
1	C01	C02	Com1aL	C21	C22	1
Pin	**a**	**b**	**c**	**d**	**e**	**Sect.**

SM4330 Lower Connector (J101) Pinout						
Pin	**a**	**b**	**c**	**d**	**e**	**Sect.**
32	C25	C27	C29	C31	FP_GND	3
31	C26	C28	C30	C32	FP_OPN	3
30	DNU	C17	C19	C21	C23	3
29	DNU	C18	C20	C22	C24	3
28	Com3	C09	C11	C13	C15	3
27	C07	C10	C12	C14	C16	3
26	C08	DNU	C01	C03	C05	3
25	Com6	DNU	C02	C04	C06	3
24	C39	DNU	DNU	DNU	DNU	2
23	C40	DNU	DNU	DNU	DNU	2
22	Shield	DNU	C33	C35	C37	2
21	Com2	DNU	C34	C36	C38	2
20	C23	C25	C27	C29	C31	2
19	C24	C26	C28	C30	C32	2
18	Shield	DNU	C17	C19	C21	2
17	Com2	DNU	C18	C20	C22	2
16	C07	C09	C11	C13	C15	2
15	C08	C10	C12	C14	C16	2
14	Shield	DNU	C01	C03	C05	2
13	Com2	DNU	C02	C04	C06	2
12	C39	DNU	DNU	DNU	DNU	1
11	C40	DNU	DNU	DNU	DNU	1
10	Shield	DNU	C33	C35	C37	1
9	Com1	DNU	C34	C36	C38	1
8	C23	C25	C27	C29	C31	1
7	C24	C26	C28	C30	C32	1
6	Shield	DNU	C17	C19	C21	1
5	Com1	DNU	C18	C20	C22	1
4	C07	C09	C11	C13	C15	1
3	C08	C10	C12	C14	C16	1
2	Shield	DNU	C01	C03	C05	1
1	Com1	DNU	C02	C04	C06	1
Pin	**a**	**b**	**c**	**d**	**e**	**Sect.**

DNU = DO NOT USE

TABLE 11-2: VX4330 LOWER CONNECTOR (J1201) TO SM4330 LOWER CONNECTOR (J101) CROSS-REFERENCE PINOUT

ONE WIRE MODE, SECTIONS 4 AND 5 JOINED, UPPER CONNECTORS

VX4330 Upper Connector (J401) Pinout						
Pin	**a**	**b**	**c**	**d**	**e**	**Sect.**
32	Enc_4b	GND	Enc_5b	GND	Enc_6b	4,5,6
31	Enc_4a	GND	Enc_5a	GND	Enc_6a	4,5,6
30	C19	C20	1W6aR	C39	C40	6
29	C15	C16	1W6a	C35	C36	6
28	C11	C12	Com6bHR	C31	C32	6
27	C07	C08	Com6bLR	C27	C28	6
26	C03	C04	Com6aHR	C23	C24	6
25	C17	C18	Com6aLR	C37	C38	6
24	C13	C14	Com6bH	C33	C34	6
23	C09	C10	Com6bL	C29	C30	6
22	C05	C06	Com6aH	C25	C26	6
21	C01	C02	Com6aL	C21	C22	6
20	C19	C20	1W5aR	C39	C40	5
19	C15	C16	1W5a	C35	C36	5
18	C11	C12	Com5bHR	C31	C32	5
17	C07	C08	Com5bLR	C27	C28	5
16	C03	C04	Com5aHR	C23	C24	5
15	C17	C18	Com5aLR	C37	C38	5
14	C13	C14	Com5bH	C33	C34	5
13	C09	C10	Com5bL	C29	C30	5
12	C05	C06	Com5aH	C25	C26	5
11	C01	C02	Com5aL	C21	C22	5
10	C19	C20	1W4aR	C39	C40	4
9	C15	C16	1W4a	C35	C36	4
8	C11	C12	Com4bHR	C31	C32	4
7	C07	C08	Com4bLR	C27	C28	4
6	C03	C04	Com4aHR	C23	C24	4
5	C17	C18	Com4aLR	C37	C38	4
4	C13	C14	Com4bH	C33	C34	4
3	C09	C10	Com4bL	C29	C30	4
2	C05	C06	Com4aH	C25	C26	4
1	C01	C02	Com4aL	C21	C22	4
Pin	**a**	**b**	**c**	**d**	**e**	**Sect.**

SM4330 Upper Connector (J100) Pinout						
Pin	**a**	**b**	**c**	**d**	**e**	**Sect.**
32	DNU	DNU	DNU	DNU	FP_GND	6
31	DNU	DNU	DNU	DNU	FP_OPN	6
30	DNU	C33	C35	C37	C39	6
29	DNU	C34	C36	C38	C40	6
28	Com6	C25	C27	C29	C31	6
27	C23	C26	C28	C30	C32	6
26	C24	DNU	C17	C19	C21	6
25	Com6	DNU	C18	C20	C22	6
24	C07	C09	C11	C13	C15	6
23	C08	C10	C12	C14	C16	6
22	Shield	DNU	C01	C03	C05	6
21	Com6	DNU	C02	C04	C06	6
20	C31	C33	C35	C37	C39	5
19	C32	C34	C36	C38	C40	5
18	Shield	DNU	C25	C27	C29	5
17	Com5	DNU	C26	C28	C30	5
16	C15	C17	C19	C21	C23	5
15	C16	C18	C20	C22	C24	5
14	Shield	DNU	C09	C11	C13	5
13	Com5	DNU	C10	C12	C14	5
12	C39	C01	C03	C05	C07	5
11	C40	C02	C04	C06	C08	5
10	Shield	DNU	C33	C35	C37	4
9	Com4	DNU	C34	C36	C38	4
8	C23	C25	C27	C29	C31	4
7	C24	C26	C28	C30	C32	4
6	Shield	DNU	C17	C19	C21	4
5	Com4	DNU	C18	C20	C22	4
4	C07	C09	C11	C13	C15	4
3	C08	C10	C12	C14	C16	4
2	Shield	DNU	C01	C03	C05	4
1	Com4	DNU	C02	C04	C06	4
Pin	**a**	**b**	**c**	**d**	**e**	**Sect.**

DNU = DO NOT USE

TABLE 11-3: VX4330 UPPER CONNECTOR (J401) TO SM4330 UPPER CONNECTOR (J100) CROSS-REFERENCE PINOUT

ONE WIRE MODE, SECTIONS 1 AND 2 JOINED, LOWER CONNECTORS

VX4330 Lower Connector (J1201) Pinout						
Pin	**a**	**b**	**c**	**d**	**e**	**Sect.**
32	Enc_1b	GND	Enc_2b	GND	Enc_3b	1,2,3
31	Enc_1a	GND	Enc_2a	GND	Enc_3a	1,2,3
30	C19	C20	1W3aR	C39	C40	3
29	C15	C16	1W3a	C35	C36	3
28	C11	C12	Com3bHR	C31	C32	3
27	C07	C08	Com3bLR	C27	C28	3
26	C03	C04	Com3aHR	C23	C24	3
25	C17	C18	Com3aLR	C37	C38	3
24	C13	C14	Com3bH	C33	C34	3
23	C09	C10	Com3bL	C29	C30	3
22	C05	C06	Com3aH	C25	C26	3
21	C01	C02	Com3aL	C21	C22	3
20	C19	C20	1W2aR	C39	C40	2
19	C15	C16	1W2a	C35	C36	2
18	C11	C12	Com2bHR	C31	C32	2
17	C07	C08	Com2bLR	C27	C28	2
16	C03	C04	Com2aHR	C23	C24	2
15	C17	C18	Com2aLR	C37	C38	2
14	C13	C14	Com2bH	C33	C34	2
13	C09	C10	Com2bL	C29	C30	2
12	C05	C06	Com2aH	C25	C26	2
11	C01	C02	Com2aL	C21	C22	2
10	C19	C20	1W1aR	C39	C40	1
9	C15	C16	1W1a	C35	C36	1
8	C11	C12	Com1bHR	C31	C32	1
7	C07	C08	Com1bLR	C27	C28	1
6	C03	C04	Com1aHR	C23	C24	1
5	C17	C18	Com1aLR	C37	C38	1
4	C13	C14	Com1bH	C33	C34	1
3	C09	C10	Com1bL	C29	C30	1
2	C05	C06	Com1aH	C25	C26	1
1	C01	C02	Com1aL	C21	C22	1
Pin	**a**	**b**	**c**	**d**	**e**	**Sect.**

SM4330 Lower Connector (J101) Pinout						
Pin	**a**	**b**	**c**	**d**	**e**	**Sect.**
32	DNU	DNU	DNU	DNU	FP_GND	3
31	DNU	DNU	DNU	DNU	FP_OPN	3
30	DNU	C33	C35	C37	C39	3
29	DNU	C34	C36	C38	C40	3
28	Com3	C25	C27	C29	C31	3
27	C23	C26	C28	C30	C32	3
26	C24	DNU	C17	C19	C21	3
25	Com3	DNU	C18	C20	C22	3
24	C07	C09	C11	C13	C15	3
23	C08	C10	C12	C14	C16	3
22	Shield	DNU	C01	C03	C05	3
21	Com3	DNU	C02	C04	C06	3
20	C31	C33	C35	C37	C39	2
19	C32	C34	C36	C38	C40	2
18	Shield	DNU	C25	C27	C29	2
17	Com2	DNU	C26	C28	C30	2
16	C15	C17	C19	C21	C23	2
15	C16	C18	C20	C22	C24	2
14	Shield	DNU	C09	C11	C13	2
13	Com2	DNU	C10	C12	C14	2
12	C39	C01	C03	C05	C07	2
11	C40	C02	C04	C06	C08	2
10	Shield	DNU	C33	C35	C37	1
9	Com1	DNU	C34	C36	C38	1
8	C23	C25	C27	C29	C31	1
7	C24	C26	C28	C30	C32	1
6	Shield	DNU	C17	C19	C21	1
5	Com1	DNU	C18	C20	C22	1
4	C07	C09	C11	C13	C15	1
3	C08	C10	C12	C14	C16	1
2	Shield	DNU	C01	C03	C05	1
1	Com1	DNU	C02	C04	C06	1
Pin	**a**	**b**	**c**	**d**	**e**	**Sect.**

DNU = DO NOT USE

TABLE 11-4: VX4330 LOWER CONNECTOR (J1201) TO SM4330 LOWER CONNECTOR (J101) CROSS-REFERENCE PINOUT

ONE WIRE MODE, SECTIONS 4, 5 AND 6 JOINED, UPPER CONNECTORS

VX4330 Upper Connector (J401) Pinout						
Pin	**a**	**b**	**c**	**d**	**e**	**Sect.**
32	Enc_4b	GND	Enc_5b	GND	Enc_6b	4,5,6
31	Enc_4a	GND	Enc_5a	GND	Enc_6a	4,5,6
30	C19	C20	1W6aR	C39	C40	6
29	C15	C16	1W6a	C35	C36	6
28	C11	C12	Com6bHR	C31	C32	6
27	C07	C08	Com6bLR	C27	C28	6
26	C03	C04	Com6aHR	C23	C24	6
25	C17	C18	Com6aLR	C37	C38	6
24	C13	C14	Com6bH	C33	C34	6
23	C09	C10	Com6bL	C29	C30	6
22	C05	C06	Com6aH	C25	C26	6
21	C01	C02	Com6aL	C21	C22	6
20	C19	C20	1W5aR	C39	C40	5
19	C15	C16	1W5a	C35	C36	5
18	C11	C12	Com5bHR	C31	C32	5
17	C07	C08	Com5bLR	C27	C28	5
16	C03	C04	Com5aHR	C23	C24	5
15	C17	C18	Com5aLR	C37	C38	5
14	C13	C14	Com5bH	C33	C34	5
13	C09	C10	Com5bL	C29	C30	5
12	C05	C06	Com5aH	C25	C26	5
11	C01	C02	Com5aL	C21	C22	5
10	C19	C20	1W4aR	C39	C40	4
9	C15	C16	1W4a	C35	C36	4
8	C11	C12	Com4bHR	C31	C32	4
7	C07	C08	Com4bLR	C27	C28	4
6	C03	C04	Com4aHR	C23	C24	4
5	C17	C18	Com4aLR	C37	C38	4
4	C13	C14	Com4bH	C33	C34	4
3	C09	C10	Com4bL	C29	C30	4
2	C05	C06	Com4aH	C25	C26	4
1	C01	C02	Com4aL	C21	C22	4
Pin	**a**	**b**	**c**	**d**	**e**	**Sect.**

SM4330 Upper Connector (J100) Pinout						
Pin	**a**	**b**	**c**	**d**	**e**	**Sect.**
32	DNU	DNU	DNU	DNU	FP_GND	6
31	DNU	DNU	DNU	DNU	FP_OPN	6
30	DNU	C33	C35	C37	C39	6
29	DNU	C34	C36	C38	C40	6
28	Com6	C25	C27	C29	C31	6
27	C23	C26	C28	C30	C32	6
26	C24	DNU	C17	C19	C21	6
25	Com6	DNU	C18	C20	C22	6
24	C07	C09	C11	C13	C15	6
23	C08	C10	C12	C14	C16	6
22	Shield	DNU	C01	C03	C05	6
21	Com6	DNU	C02	C04	C06	6
20	C31	C33	C35	C37	C39	5
19	C32	C34	C36	C38	C40	5
18	Shield	DNU	C25	C27	C29	5
17	Com5	DNU	C26	C28	C30	5
16	C15	C17	C19	C21	C23	5
15	C16	C18	C20	C22	C24	5
14	Shield	DNU	C09	C11	C13	5
13	Com5	DNU	C10	C12	C14	5
12	C39	C01	C03	C05	C07	5
11	C40	C02	C04	C06	C08	5
10	Shield	DNU	C33	C35	C37	4
9	Com4	DNU	C34	C36	C38	4
8	C23	C25	C27	C29	C31	4
7	C24	C26	C28	C30	C32	4
6	Shield	DNU	C17	C19	C21	4
5	Com4	DNU	C18	C20	C22	4
4	C07	C09	C11	C13	C15	4
3	C08	C10	C12	C14	C16	4
2	Shield	DNU	C01	C03	C05	4
1	Com4	DNU	C02	C04	C06	4
Pin	**a**	**b**	**c**	**d**	**e**	**Sect.**

DNU = DO NOT USE

TABLE 11-5: VX4330 UPPER CONNECTOR (J401) TO SM4330 UPPER CONNECTOR (J100) CROSS-REFERENCE PINOUT

ONE WIRE MODE, SECTIONS 1, 2 AND 3 JOINED, LOWER CONNECTORS

VX4330 Lower Connector (J101) Pinout						
Pin	**a**	**b**	**c**	**d**	**e**	**Sect.**
32	Enc_1b	GND	Enc_2b	GND	Enc_3b	1,2,3
31	Enc_1a	GND	Enc_2a	GND	Enc_3a	1,2,3
30	C19	C20	1W3aR	C39	C40	3
29	C15	C16	1W3a	C35	C36	3
28	C11	C12	Com3bHR	C31	C32	3
27	C07	C08	Com3bLR	C27	C28	3
26	C03	C04	Com3aHR	C23	C24	3
25	C17	C18	Com3aLR	C37	C38	3
24	C13	C14	Com3bH	C33	C34	3
23	C09	C10	Com3bL	C29	C30	3
22	C05	C06	Com3aH	C25	C26	3
21	C01	C02	Com3aL	C21	C22	3
20	C19	C20	1W2aR	C39	C40	2
19	C15	C16	1W2a	C35	C36	2
18	C11	C12	Com2bHR	C31	C32	2
17	C07	C08	Com2bLR	C27	C28	2
16	C03	C04	Com2aHR	C23	C24	2
15	C17	C18	Com2aLR	C37	C38	2
14	C13	C14	Com2bH	C33	C34	2
13	C09	C10	Com2bL	C29	C30	2
12	C05	C06	Com2aH	C25	C26	2
11	C01	C02	Com2aL	C21	C22	2
10	C19	C20	1W1aR	C39	C40	1
9	C15	C16	1W1a	C35	C36	1
8	C11	C12	Com1bHR	C31	C32	1
7	C07	C08	Com1bLR	C27	C28	1
6	C03	C04	Com1aHR	C23	C24	1
5	C17	C18	Com1aLR	C37	C38	1
4	C13	C14	Com1bH	C33	C34	1
3	C09	C10	Com1bL	C29	C30	1
2	C05	C06	Com1aH	C25	C26	1
1	C01	C02	Com1aL	C21	C22	1
Pin	**a**	**b**	**c**	**d**	**e**	**Sect.**

SM4330 Lower Connector (J101) Pinout						
Pin	**a**	**b**	**c**	**d**	**e**	**Sect.**
32	DNU	DNU	DNU	DNU	FP_GND	3
31	DNU	DNU	DNU	DNU	FP_OPN	3
30	DNU	C33	C35	C37	C39	3
29	DNU	C34	C36	C38	C40	3
28	Com3	C25	C27	C29	C31	3
27	C23	C26	C28	C30	C32	3
26	C24	DNU	C17	C19	C21	3
25	Com3	DNU	C18	C20	C22	3
24	C07	C09	C11	C13	C15	3
23	C08	C10	C12	C14	C16	3
22	Shield	DNU	C01	C03	C05	3
21	Com3	DNU	C02	C04	C06	3
20	C31	C33	C35	C37	C39	2
19	C32	C34	C36	C38	C40	2
18	Shield	DNU	C25	C27	C29	2
17	Com2	DNU	C26	C28	C30	2
16	C15	C17	C19	C21	C23	2
15	C16	C18	C20	C22	C24	2
14	Shield	DNU	C09	C11	C13	2
13	Com2	DNU	C10	C12	C14	2
12	C39	C01	C03	C05	C07	2
11	C40	C02	C04	C06	C08	2
10	Shield	DNU	C33	C35	C37	1
9	Com1	DNU	C34	C36	C38	1
8	C23	C25	C27	C29	C31	1
7	C24	C26	C28	C30	C32	1
6	Shield	DNU	C17	C19	C21	1
5	Com1	DNU	C18	C20	C22	1
4	C07	C09	C11	C13	C15	1
3	C08	C10	C12	C14	C16	1
2	Shield	DNU	C01	C03	C05	1
1	Com1	DNU	C02	C04	C06	1
Pin	**a**	**b**	**c**	**d**	**e**	**Sect.**

DNU = DO NOT USE

TABLE 11-6: VX4330 LOWER CONNECTOR (J1201) TO SM4330 LOWER CONNECTOR (J101) CROSS-REFERENCE PINOUT

TWO WIRE MODE, NO SECTIONS JOINED, UPPER CONNECTORS

VX4330 Upper Connector (J401) Pinout						
Pin	**a**	**b**	**c**	**d**	**e**	**Sect.**
32	Enc_4b	GND	Enc_5b	GND	Enc_6b	4,5,6
31	Enc_4a	GND	Enc_5a	GND	Enc_6a	4,5,6
30	C10Lo	C10Hi	1W6aR	C20Lo	C20Hi	6
29	C08Lo	C08Hi	1W6a	C18Lo	C18Hi	6
28	C06Lo	C06Hi	Com6bHR	C16Lo	C16Hi	6
27	C04Lo	C04Hi	Com6bLR	C14Lo	C14Hi	6
26	C02Lo	C02Hi	Com6aHR	C12Lo	C12Hi	6
25	C09Lo	C09Hi	Com6aLR	C19Lo	C19Hi	6
24	C07Lo	C07Hi	Com6bH	C17Lo	C17Hi	6
23	C05Lo	C05Hi	Com6bL	C15Lo	C15Hi	6
22	C03Lo	C03Hi	Com6aH	C13Lo	C13Hi	6
21	C01Lo	C01Hi	Com6aL	C11Lo	C11Hi	6
20	C10Lo	C10Hi	1W5aR	C20Lo	C20Hi	5
19	C08Lo	C08Hi	1W5a	C18Lo	C18Hi	5
18	C06Lo	C06Hi	Com5bHR	C16Lo	C16Hi	5
17	C04Lo	C04Hi	Com5bLR	C14Lo	C14Hi	5
16	C02Lo	C02Hi	Com5aHR	C12Lo	C12Hi	5
15	C09Lo	C09Hi	Com5aLR	C19Lo	C19Hi	5
14	C07Lo	C07Hi	Com5bH	C17Lo	C17Hi	5
13	C05Lo	C05Hi	Com5bL	C15Lo	C15Hi	5
12	C03Lo	C03Hi	Com5aH	C13Lo	C13Hi	5
11	C01Lo	C01Hi	Com5aL	C11Lo	C11Hi	5
10	C10Lo	C10Hi	1W4aR	C20Lo	C20Hi	4
9	C08Lo	C08Hi	1W4a	C18Lo	C18Hi	4
8	C06Lo	C06Hi	Com4bHR	C16Lo	C16Hi	4
7	C04Lo	C04Hi	Com4bLR	C14Lo	C14Hi	4
6	C02Lo	C02Hi	Com4aHR	C12Lo	C12Hi	4
5	C09Lo	C09Hi	Com4aLR	C19Lo	C19Hi	4
4	C07Lo	C07Hi	Com4bH	C17Lo	C17Hi	4
3	C05Lo	C05Hi	Com4bL	C15Lo	C15Hi	4
2	C03Lo	C03Hi	Com4aH	C13Lo	C13Hi	4
1	C01Lo	C01Hi	Com4aL	C11Lo	C11Hi	4
Pin	**a**	**b**	**c**	**d**	**e**	**Sect.**

SM4330 Upper Connector (J100) Pinout						
Pin	**a**	**b**	**c**	**d**	**e**	**Sect.**
32	C13Lo	C14Lo	C15Lo	C16Lo	FP_GND	6
31	C13Hi	C14Hi	C15Hi	C16Hi	FP_OPN	6
30	Com6Lo	C09Lo	C10Lo	C11Lo	C12Lo	6
29	Com6Hi	C09Hi	C10Hi	C11Hi	C12Hi	6
28	DNU	C05Lo	C06Lo	C07Lo	C08Lo	6
27	C04Lo	C05Hi	C06Hi	C07Hi	C08Hi	6
26	C04Hi	Com6Lo	C01Lo	C02Lo	C03Lo	6
25	DNU	Com6Hi	C01Hi	C02Hi	C03Hi	6
24	C20Lo	DNU	DNU	DNU	DNU	5
23	C20Hi	DNU	DNU	DNU	DNU	5
22	Shield	Com5Lo	C17Lo	C18Lo	C19Lo	5
21	DNU	Com5Hi	C17Hi	C18Hi	C19Hi	5
20	C12Lo	C13Lo	C14Lo	C15Lo	C16Lo	5
19	C12Hi	C13Hi	C14Hi	C15Hi	C16Hi	5
18	Shield	Com5Lo	C09Lo	C10Lo	C11Lo	5
17	DNU	Com5Hi	C09Hi	C10Hi	C11Hi	5
16	C04Lo	C05Lo	C06Lo	C07Lo	C08Lo	5
15	C04Hi	C05Hi	C06Hi	C07Hi	C08Hi	5
14	Shield	Com5Lo	C01Lo	C02Lo	C03Lo	5
13	DNU	Com5Hi	C01Hi	C02Hi	C03Hi	5
12	C20Lo	DNU	DNU	DNU	DNU	4
11	C20Hi	DNU	DNU	DNU	DNU	4
10	Shield	Com4Lo	C17Lo	C18Lo	C19Lo	4
9	DNU	Com4Hi	C17Hi	C18Hi	C19Hi	4
8	C12Lo	C13Lo	C14Lo	C15Lo	C16Lo	4
7	C12Hi	C13Hi	C14Hi	C15Hi	C16Hi	4
6	Shield	Com4Lo	C09Lo	C10Lo	C11Lo	4
5	DNU	Com4Hi	C09Hi	C10Hi	C11Hi	4
4	C04Lo	C05Lo	C06Lo	C07Lo	C08Lo	4
3	C04Hi	C05Hi	C06Hi	C07Hi	C08Hi	4
2	Shield	Com4Lo	C01Lo	C02Lo	C03Lo	4
1	DNU	Com4Hi	C01Hi	C02Hi	C03Hi	4
Pin	**a**	**b**	**c**	**d**	**e**	**Sect.**

DNU = DO NOT USE

TABLE 11-7: VX4330 UPPER CONNECTOR (J401) TO SM4330 UPPER CONNECTOR (J100) CROSS-REFERENCE PINOUT

TWO WIRE MODE, NO SECTIONS JOINED, LOWER CONNECTORS

VX4330 Lower Connector (J1201) Pinout						
Pin	**a**	**b**	**c**	**d**	**e**	**Sect.**
32	Enc_1b	GND	Enc_2b	GND	Enc_3b	1,2,3
31	Enc_1a	GND	Enc_2a	GND	Enc_3a	1,2,3
30	C10Lo	C10Hi	1W3aR	C20Lo	C20Hi	3
29	C08Lo	C08Hi	1W3a	C18Lo	C18Hi	3
28	C06Lo	C06Hi	Com3bHR	C16Lo	C16Hi	3
27	C04Lo	C04Hi	Com3bLR	C14Lo	C14Hi	3
26	C02Lo	C02Hi	Com3aHR	C12Lo	C12Hi	3
25	C09Lo	C09Hi	Com3aLR	C19Lo	C19Hi	3
24	C07Lo	C07Hi	Com3bH	C17Lo	C17Hi	3
23	C05Lo	C05Hi	Com3bL	C15Lo	C15Hi	3
22	C03Lo	C03Hi	Com3aH	C13Lo	C13Hi	3
21	C01Lo	C01Hi	Com3aL	C11Lo	C11Hi	3
20	C10Lo	C10Hi	1W2aR	C20Lo	C20Hi	2
19	C08Lo	C08Hi	1W2a	C18Lo	C18Hi	2
18	C06Lo	C06Hi	Com2bHR	C16Lo	C16Hi	2
17	C04Lo	C04Hi	Com2bLR	C14Lo	C14Hi	2
16	C02Lo	C02Hi	Com2aHR	C12Lo	C12Hi	2
15	C09Lo	C09Hi	Com2aLR	C19Lo	C19Hi	2
14	C07Lo	C07Hi	Com2bH	C17Lo	C17Hi	2
13	C05Lo	C05Hi	Com2bL	C15Lo	C15Hi	2
12	C03Lo	C03Hi	Com2aH	C13Lo	C13Hi	2
11	C01Lo	C01Hi	Com2aL	C11Lo	C11Hi	2
10	C10Lo	C10Hi	1W1aR	C20Lo	C20Hi	1
9	C08Lo	C08Hi	1W1a	C18Lo	C18Hi	1
8	C06Lo	C06Hi	Com1bHR	C16Lo	C16Hi	1
7	C04Lo	C04Hi	Com1bLR	C14Lo	C14Hi	1
6	C02Lo	C02Hi	Com1aHR	C12Lo	C12Hi	1
5	C09Lo	C09Hi	Com1aLR	C19Lo	C19Hi	1
4	C07Lo	C07Hi	Com1bH	C17Lo	C17Hi	1
3	C05Lo	C05Hi	Com1bL	C15Lo	C15Hi	1
2	C03Lo	C03Hi	Com1aH	C13Lo	C13Hi	1
1	C01Lo	C01Hi	Com1aL	C11Lo	C11Hi	1
Pin	**a**	**b**	**c**	**d**	**e**	**Sect.**

SM4330 Lower Connector (J101) Pinout						
Pin	**a**	**b**	**c**	**d**	**e**	**Sect.**
32	C13Lo	C14Lo	C15Lo	C16Lo	FP_GND	3
31	C13Hi	C14Hi	C15Hi	C16Hi	FP_OPN	3
30	Com3Lo	C09Lo	C10Lo	C11Lo	C12Lo	3
29	Com3Hi	C09Hi	C10Hi	C11Hi	C12Hi	3
28	DNU	C05Lo	C06Lo	C07Lo	C08Lo	3
27	C04Lo	C05Hi	C06Hi	C07Hi	C08Hi	3
26	C04Hi	Com3Lo	C01Lo	C02Lo	C03Lo	3
25	DNU	Com3Hi	C01Hi	C02Hi	C03Hi	3
24	C20Lo	DNU	DNU	DNU	DNU	2
23	C20Hi	DNU	DNU	DNU	DNU	2
22	Shield	Com2Lo	C17Lo	C18Lo	C19Lo	2
21	DNU	Com2Hi	C17Hi	C18Hi	C19Hi	2
20	C12Lo	C13Lo	C14Lo	C15Lo	C16Lo	2
19	C12Hi	C13Hi	C14Hi	C15Hi	C16Hi	2
18	Shield	Com2Lo	C09Lo	C10Lo	C11Lo	2
17	DNU	Com2Hi	C09Hi	C10Hi	C11Hi	2
16	C04Lo	C05Lo	C06Lo	C07Lo	C08Lo	2
15	C04Hi	C05Hi	C06Hi	C07Hi	C08Hi	2
14	Shield	Com2Lo	C01Lo	C02Lo	C03Lo	2
13	DNU	Com2Hi	C01Hi	C02Hi	C03Hi	2
12	C20Lo	DNU	DNU	DNU	DNU	1
11	C20Hi	DNU	DNU	DNU	DNU	1
10	Shield	Com1Lo	C17Lo	C18Lo	C19Lo	1
9	DNU	Com1Hi	C17Hi	C18Hi	C19Hi	1
8	C12Lo	C13Lo	C14Lo	C15Lo	C16Lo	1
7	C12Hi	C13Hi	C14Hi	C15Hi	C16Hi	1
6	Shield	Com1Lo	C09Lo	C10Lo	C11Lo	1
5	DNU	Com1Hi	C09Hi	C10Hi	C11Hi	1
4	C04Lo	C05Lo	C06Lo	C07Lo	C08Lo	1
3	C04Hi	C05Hi	C06Hi	C07Hi	C08Hi	1
2	Shield	Com1Lo	C01Lo	C02Lo	C03Lo	1
1	DNU	Com1Hi	C01Hi	C02Hi	C03Hi	1
Pin	**a**	**b**	**c**	**d**	**e**	**Sect.**

DNU = DO NOT USE

TABLE 11-8: VX4330 LOWER CONNECTOR (J1201) TO SM4330 LOWER CONNECTOR (J101) CROSS-REFERENCE PINOUT

TWO WIRE MODE, SECTIONS 4 AND 5 JOINED, UPPER CONNECTORS

VX4330 Upper Connector (J401) Pinout						
Pin	**a**	**b**	**c**	**d**	**e**	**Sect.**
32	Enc_4b	GND	Enc_5b	GND	Enc_6b	4,5,6
31	Enc_4a	GND	Enc_5a	GND	Enc_6a	4,5,6
30	C10Lo	C10Hi	1W6aR	C20Lo	C20Hi	6
29	C08Lo	C08Hi	1W6a	C18Lo	C18Hi	6
28	C06Lo	C06Hi	Com6bHR	C16Lo	C16Hi	6
27	C04Lo	C04Hi	Com6bLR	C14Lo	C14Hi	6
26	C02Lo	C02Hi	Com6aHR	C12Lo	C12Hi	6
25	C09Lo	C09Hi	Com6aLR	C19Lo	C19Hi	6
24	C07Lo	C07Hi	Com6bH	C17Lo	C17Hi	6
23	C05Lo	C05Hi	Com6bL	C15Lo	C15Hi	6
22	C03Lo	C03Hi	Com6aH	C13Lo	C13Hi	6
21	C01Lo	C01Hi	Com6aL	C11Lo	C11Hi	6
20	C10Lo	C10Hi	1W5aR	C20Lo	C20Hi	5
19	C08Lo	C08Hi	1W5a	C18Lo	C18Hi	5
18	C06Lo	C06Hi	Com5bHR	C16Lo	C16Hi	5
17	C04Lo	C04Hi	Com5bLR	C14Lo	C14Hi	5
16	C02Lo	C02Hi	Com5aHR	C12Lo	C12Hi	5
15	C09Lo	C09Hi	Com5aLR	C19Lo	C19Hi	5
14	C07Lo	C07Hi	Com5bH	C17Lo	C17Hi	5
13	C05Lo	C05Hi	Com5bL	C15Lo	C15Hi	5
12	C03Lo	C03Hi	Com5aH	C13Lo	C13Hi	5
11	C01Lo	C01Hi	Com5aL	C11Lo	C11Hi	5
10	C10Lo	C10Hi	1W4aR	C20Lo	C20Hi	4
9	C08Lo	C08Hi	1W4a	C18Lo	C18Hi	4
8	C06Lo	C06Hi	Com4bHR	C16Lo	C16Hi	4
7	C04Lo	C04Hi	Com4bLR	C14Lo	C14Hi	4
6	C02Lo	C02Hi	Com4aHR	C12Lo	C12Hi	4
5	C09Lo	C09Hi	Com4aLR	C19Lo	C19Hi	4
4	C07Lo	C07Hi	Com4bH	C17Lo	C17Hi	4
3	C05Lo	C05Hi	Com4bL	C15Lo	C15Hi	4
2	C03Lo	C03Hi	Com4aH	C13Lo	C13Hi	4
1	C01Lo	C01Hi	Com4aL	C11Lo	C11Hi	4
Pin	**a**	**b**	**c**	**d**	**e**	**Sect.**

SM4330 Upper Connector (J100) Pinout						
Pin	**a**	**b**	**c**	**d**	**e**	**Sect.**
32	DNU	DNU	DNU	DNU	FP_GND	6
31	DNU	DNU	DNU	DNU	FP_OPN	6
30	Com6Lo	C17Lo	C18Lo	C19Lo	C20Lo	6
29	Com6Hi	C17Hi	C18Hi	C19Hi	C20Hi	6
28	DNU	C13Lo	C14Lo	C15Lo	C16Lo	6
27	C12Lo	C13Hi	C14Hi	C15Hi	C16Hi	6
26	C12Hi	Com6Lo	C09Lo	C10Lo	C111Lo	6
25	DNU	Com6Hi	C09Hi	C10Hi	C11Hi	6
24	C04Lo	C05Lo	C06Lo	C07Lo	C08Lo	6
23	C04Hi	C05Hi	C06Hi	C07Hi	C08Hi	6
22	Shield	Com6Lo	C01Lo	C02Lo	C03Lo	6
21	DNU	Com6Hi	C01Hi	C02Hi	C03Hi	6
20	C16Lo	C17Lo	C18Lo	C19Lo	C20Lo	5
19	C16Hi	C17Hi	C18Hi	C19Hi	C20Hi	5
18	Shield	Com5Lo	C13Lo	C14Lo	C15Lo	5
17	DNU	Com5Hi	C13Hi	C14Hi	C15Hi	5
16	C08Lo	C09Lo	C10Lo	C11Lo	C12Lo	5
15	C08Hi	C09Hi	C10Hi	C11Hi	C12Hi	5
14	Shield	Com5Lo	C05Lo	C06Lo	C07Lo	5
13	DNU	Com5Hi	C05Hi	C06Hi	C07Hi	5
12	C20Lo	C01Lo	C02Lo	C03Lo	C04Lo	5
11	C20Hi	C01Hi	C02Hi	C03Hi	C04Hi	5
10	Shield	Com4Lo	C17Lo	C18Lo	C19Lo	4
9	DNU	Com4Hi	C17Hi	C18Hi	C19Hi	4
8	C12Lo	C13Lo	C14Lo	C15Lo	C16Lo	4
7	C12Hi	C13Hi	C14Hi	C15Hi	C16Hi	4
6	Shield	Com4Lo	C09Lo	C10Lo	C11Lo	4
5	DNU	Com4Hi	C09Hi	C10Hi	C11Hi	4
4	C04Lo	C05Lo	C06Lo	C07Lo	C08Lo	4
3	C04Hi	C05Hi	C06Hi	C07Hi	C08Hi	4
2	Shield	Com4Lo	C01Lo	C02Lo	C03Lo	4
1	DNU	Com4Hi	C01Hi	C02Hi	C03Hi	4
Pin	**a**	**b**	**c**	**d**	**e**	**Sect.**

DNU = DO NOT USE

TABLE 11-9: VX4330 UPPER CONNECTOR (J401) TO SM4330 UPPER CONNECTOR (J100) CROSS-REFERENCE PINOUT

TWO WIRE MODE, SECTIONS 1 AND 2 JOINED, LOWER CONNECTORS

VX4330 Lower Connector (J1201) Pinout						
Pin	**a**	**b**	**c**	**d**	**e**	**Sect.**
32	Enc_1b	GND	Enc_2b	GND	Enc_3b	1,2,3
31	Enc_1a	GND	Enc_2a	GND	Enc_3a	1,2,3
30	C10Lo	C10Hi	1W3aR	C20Lo	C20Hi	3
29	C08Lo	C08Hi	1W3a	C18Lo	C18Hi	3
28	C06Lo	C06Hi	Com3bHR	C16Lo	C16Hi	3
27	C04Lo	C04Hi	Com3bLR	C14Lo	C14Hi	3
26	C02Lo	C02Hi	Com3aHR	C12Lo	C12Hi	3
25	C09Lo	C09Hi	Com3aLR	C19Lo	C19Hi	3
24	C07Lo	C07Hi	Com3bH	C17Lo	C17Hi	3
23	C05Lo	C05Hi	Com3bL	C15Lo	C15Hi	3
22	C03Lo	C03Hi	Com3aH	C13Lo	C13Hi	3
21	C01Lo	C01Hi	Com3aL	C11Lo	C11Hi	3
20	C10Lo	C10Hi	1W2aR	C20Lo	C20Hi	2
19	C08Lo	C08Hi	1W2a	C18Lo	C18Hi	2
18	C06Lo	C06Hi	Com2bHR	C16Lo	C16Hi	2
17	C04Lo	C04Hi	Com2bLR	C14Lo	C14Hi	2
16	C02Lo	C02Hi	Com2aHR	C12Lo	C12Hi	2
15	C09Lo	C09Hi	Com2aLR	C19Lo	C19Hi	2
14	C07Lo	C07Hi	Com2bH	C17Lo	C17Hi	2
13	C05Lo	C05Hi	Com2bL	C15Lo	C15Hi	2
12	C03Lo	C03Hi	Com2aH	C13Lo	C13Hi	2
11	C01Lo	C01Hi	Com2aL	C11Lo	C11Hi	2
10	C10Lo	C10Hi	1W1aR	C20Lo	C20Hi	1
9	C08Lo	C08Hi	1W1a	C18Lo	C18Hi	1
8	C06Lo	C06Hi	Com1bHR	C16Lo	C16Hi	1
7	C04Lo	C04Hi	Com1bLR	C14Lo	C14Hi	1
6	C02Lo	C02Hi	Com1aHR	C12Lo	C12Hi	1
5	C09Lo	C09Hi	Com1aLR	C19Lo	C19Hi	1
4	C07Lo	C07Hi	Com1bH	C17Lo	C17Hi	1
3	C05Lo	C05Hi	Com1bL	C15Lo	C15Hi	1
2	C03Lo	C03Hi	Com1aH	C13Lo	C13Hi	1
1	C01Lo	C01Hi	Com1aL	C11Lo	C11Hi	1
Pin	**a**	**b**	**c**	**d**	**e**	**Sect.**

SM4330 Lower Connector (J101) Pinout						
Pin	**a**	**b**	**c**	**d**	**e**	**Sect.**
32	DNU	DNU	DNU	DNU	FP_GND	3
31	DNU	DNU	DNU	DNU	FP_OPN	3
30	Com3Lo	C17Lo	C18Lo	C19Lo	C20Lo	3
29	Com3Hi	C17Hi	C18Hi	C19Hi	C20Hi	3
28	DNU	C13Lo	C14Lo	C15Lo	C16Lo	3
27	C12Lo	C13Hi	C14Hi	C15Hi	C16Hi	3
26	C12Hi	Com3Lo	C09Lo	C10Lo	C111Lo	3
25	DNU	Com3Hi	C09Hi	C10Hi	C11Hi	3
24	C04Lo	C05Lo	C06Lo	C07Lo	C08Lo	3
23	C04Hi	C05Hi	C06Hi	C07Hi	C08Hi	3
22	Shield	Com3Lo	C01Lo	C02Lo	C03Lo	3
21	DNU	Com3Hi	C01Hi	C02Hi	C03Hi	3
20	C16Lo	C17Lo	C18Lo	C19Lo	C20Lo	2
19	C16Hi	C17Hi	C18Hi	C19Hi	C20Hi	2
18	Shield	Com2Lo	C13Lo	C14Lo	C15Lo	2
17	DNU	Com2Hi	C13Hi	C14Hi	C15Hi	2
16	C08Lo	C09Lo	C10Lo	C11Lo	C12Lo	2
15	C08Hi	C09Hi	C10Hi	C11Hi	C12Hi	2
14	Shield	Com2Lo	C05Lo	C06Lo	C07Lo	2
13	DNU	Com2Hi	C05Hi	C06Hi	C07Hi	2
12	C20Lo	C01Lo	C02Lo	C03Lo	C04Lo	2
11	C20Hi	C01Hi	C02Hi	C03Hi	C04Hi	2
10	Shield	Com1Lo	C17Lo	C18Lo	C19Lo	1
9	DNU	Com1Hi	C17Hi	C18Hi	C19Hi	1
8	C12Lo	C13Lo	C14Lo	C15Lo	C16Lo	1
7	C12Hi	C13Hi	C14Hi	C15Hi	C16Hi	1
6	Shield	Com1Lo	C09Lo	C10Lo	C11Lo	1
5	DNU	Com1Hi	C09Hi	C10Hi	C11Hi	1
4	C04Lo	C05Lo	C06Lo	C07Lo	C08Lo	1
3	C04Hi	C05Hi	C06Hi	C07Hi	C08Hi	1
2	Shield	Com1Lo	C01Lo	C02Lo	C03Lo	1
1	DNU	Com1Hi	C01Hi	C02Hi	C03Hi	1
Pin	**a**	**b**	**c**	**d**	**e**	**Sect.**

DNU = DO NOT USE

TABLE 11-10: VX4330 LOWER CONNECTOR (J1201) TO SM4330 LOWER CONNECTOR (J101) CROSS-REFERENCE PINOUT

TWO WIRE MODE, SECTIONS 4, 5 AND 6 JOINED, UPPER CONNECTORS

VX4330 Upper Connector (J401) Pinout						
Pin	**a**	**b**	**c**	**d**	**e**	**Sect.**
32	Enc_4b	GND	Enc_5b	GND	Enc_6b	4,5,6
31	Enc_4a	GND	Enc_5a	GND	Enc_6a	4,5,6
30	C10Lo	C10Hi	1W6aR	C20Lo	C20Hi	6
29	C08Lo	C08Hi	1W6a	C18Lo	C18Hi	6
28	C06Lo	C06Hi	Com6bHR	C16Lo	C16Hi	6
27	C04Lo	C04Hi	Com6bLR	C14Lo	C14Hi	6
26	C02Lo	C02Hi	Com6aHR	C12Lo	C12Hi	6
25	C09Lo	C09Hi	Com6aLR	C19Lo	C19Hi	6
24	C07Lo	C07Hi	Com6bH	C17Lo	C17Hi	6
23	C05Lo	C05Hi	Com6bL	C15Lo	C15Hi	6
22	C03Lo	C03Hi	Com6aH	C13Lo	C13Hi	6
21	C01Lo	C01Hi	Com6aL	C11Lo	C11Hi	6
20	C10Lo	C10Hi	1W5aR	C20Lo	C20Hi	5
19	C08Lo	C08Hi	1W5a	C18Lo	C18Hi	5
18	C06Lo	C06Hi	Com5bHR	C16Lo	C16Hi	5
17	C04Lo	C04Hi	Com5bLR	C14Lo	C14Hi	5
16	C02Lo	C02Hi	Com5aHR	C12Lo	C12Hi	5
15	C09Lo	C09Hi	Com5aLR	C19Lo	C19Hi	5
14	C07Lo	C07Hi	Com5bH	C17Lo	C17Hi	5
13	C05Lo	C05Hi	Com5bL	C15Lo	C15Hi	5
12	C03Lo	C03Hi	Com5aH	C13Lo	C13Hi	5
11	C01Lo	C01Hi	Com5aL	C11Lo	C11Hi	5
10	C10Lo	C10Hi	1W4aR	C20Lo	C20Hi	4
9	C08Lo	C08Hi	1W4a	C18Lo	C18Hi	4
8	C06Lo	C06Hi	Com4bHR	C16Lo	C16Hi	4
7	C04Lo	C04Hi	Com4bLR	C14Lo	C14Hi	4
6	C02Lo	C02Hi	Com4aHR	C12Lo	C12Hi	4
5	C09Lo	C09Hi	Com4aLR	C19Lo	C19Hi	4
4	C07Lo	C07Hi	Com4bH	C17Lo	C17Hi	4
3	C05Lo	C05Hi	Com4bL	C15Lo	C15Hi	4
2	C03Lo	C03Hi	Com4aH	C13Lo	C13Hi	4
1	C01Lo	C01Hi	Com4aL	C11Lo	C11Hi	4
Pin	**a**	**b**	**c**	**d**	**e**	**Sect.**

SM4330 Upper Connector (J100) Pinout						
Pin	**a**	**b**	**c**	**d**	**e**	**Sect.**
32	DNU	DNU	DNU	DNU	FP_GND	6
31	DNU	DNU	DNU	DNU	FP_OPN	6
30	Com6Lo	C17Lo	C18Lo	C19Lo	C20Lo	6
29	Com6Hi	C17Hi	C18Hi	C19Hi	C20Hi	6
28	DNU	C13Lo	C14Lo	C15Lo	C16Lo	6
27	C12Lo	C13Hi	C14Hi	C15Hi	C16Hi	6
26	C12Hi	Com6Lo	C09Lo	C10Lo	C111Lo	6
25	DNU	Com6Hi	C09Hi	C10Hi	C11Hi	6
24	C04Lo	C05Lo	C06Lo	C07Lo	C08Lo	6
23	C04Hi	C05Hi	C06Hi	C07Hi	C08Hi	6
22	Shield	Com6Lo	C01Lo	C02Lo	C03Lo	6
21	DNU	Com6Hi	C01Hi	C02Hi	C03Hi	6
20	C16Lo	C17Lo	C18Lo	C19Lo	C20Lo	5
19	C16Hi	C17Hi	C18Hi	C19Hi	C20Hi	5
18	Shield	Com5Lo	C13Lo	C14Lo	C15Lo	5
17	DNU	Com5Hi	C13Hi	C14Hi	C15Hi	5
16	C08Lo	C09Lo	C10Lo	C11Lo	C12Lo	5
15	C08Hi	C09Hi	C10Hi	C11Hi	C12Hi	5
14	Shield	Com5Lo	C05Lo	C06Lo	C07Lo	5
13	DNU	Com5Hi	C05Hi	C06Hi	C07Hi	5
12	C20Lo	C01Lo	C02Lo	C03Lo	C04Lo	5
11	C20Hi	C01Hi	C02Hi	C03Hi	C04Hi	5
10	Shield	Com4Lo	C17Lo	C18Lo	C19Lo	4
9	DNU	Com4Hi	C17Hi	C18Hi	C19Hi	4
8	C12Lo	C13Lo	C14Lo	C15Lo	C16Lo	4
7	C12Hi	C13Hi	C14Hi	C15Hi	C16Hi	4
6	Shield	Com4Lo	C09Lo	C10Lo	C11Lo	4
5	DNU	Com4Hi	C09Hi	C10Hi	C11Hi	4
4	C04Lo	C05Lo	C06Lo	C07Lo	C08Lo	4
3	C04Hi	C05Hi	C06Hi	C07Hi	C08Hi	4
2	Shield	Com4Lo	C01Lo	C02Lo	C03Lo	4
1	DNU	Com4Hi	C01Hi	C02Hi	C03Hi	4
Pin	**a**	**b**	**c**	**d**	**e**	**Sect.**

DNU = DO NOT USE

TABLE 11-11: VX4330 UPPER CONNECTOR (J401) TO SM4330 UPPER CONNECTOR (J100) CROSS-REFERENCE PINOUT

TWO WIRE MODE, SECTIONS 1, 2 AND 3 JOINED, LOWER CONNECTORS

VX4330 Lower Connector (J1201) Pinout						
Pin	**a**	**b**	**c**	**d**	**e**	**Sect.**
32	Enc_1b	GND	Enc_2b	GND	Enc_3b	1,2,3
31	Enc_1a	GND	Enc_2a	GND	Enc_3a	1,2,3
30	C10Lo	C10Hi	1W3aR	C20Lo	C20Hi	3
29	C08Lo	C08Hi	1W3a	C18Lo	C18Hi	3
28	C06Lo	C06Hi	Com3bHR	C16Lo	C16Hi	3
27	C04Lo	C04Hi	Com3bLR	C14Lo	C14Hi	3
26	C02Lo	C02Hi	Com3aHR	C12Lo	C12Hi	3
25	C09Lo	C09Hi	Com3aLR	C19Lo	C19Hi	3
24	C07Lo	C07Hi	Com3bH	C17Lo	C17Hi	3
23	C05Lo	C05Hi	Com3bL	C15Lo	C15Hi	3
22	C03Lo	C03Hi	Com3aH	C13Lo	C13Hi	3
21	C01Lo	C01Hi	Com3aL	C11Lo	C11Hi	3
20	C10Lo	C10Hi	1W2aR	C20Lo	C20Hi	2
19	C08Lo	C08Hi	1W2a	C18Lo	C18Hi	2
18	C06Lo	C06Hi	Com2bHR	C16Lo	C16Hi	2
17	C04Lo	C04Hi	Com2bLR	C14Lo	C14Hi	2
16	C02Lo	C02Hi	Com2aHR	C12Lo	C12Hi	2
15	C09Lo	C09Hi	Com2aLR	C19Lo	C19Hi	2
14	C07Lo	C07Hi	Com2bH	C17Lo	C17Hi	2
13	C05Lo	C05Hi	Com2bL	C15Lo	C15Hi	2
12	C03Lo	C03Hi	Com2aH	C13Lo	C13Hi	2
11	C01Lo	C01Hi	Com2aL	C11Lo	C11Hi	2
10	C10Lo	C10Hi	1W1aR	C20Lo	C20Hi	1
9	C08Lo	C08Hi	1W1a	C18Lo	C18Hi	1
8	C06Lo	C06Hi	Com1bHR	C16Lo	C16Hi	1
7	C04Lo	C04Hi	Com1bLR	C14Lo	C14Hi	1
6	C02Lo	C02Hi	Com1aHR	C12Lo	C12Hi	1
5	C09Lo	C09Hi	Com1aLR	C19Lo	C19Hi	1
4	C07Lo	C07Hi	Com1bH	C17Lo	C17Hi	1
3	C05Lo	C05Hi	Com1bL	C15Lo	C15Hi	1
2	C03Lo	C03Hi	Com1aH	C13Lo	C13Hi	1
1	C01Lo	C01Hi	Com1aL	C11Lo	C11Hi	1
Pin	**a**	**b**	**c**	**d**	**e**	**Sect.**

SM4330 Lower Connector (J101) Pinout						
Pin	**a**	**b**	**c**	**d**	**e**	**Sect.**
32	DNU	DNU	DNU	DNU	FP_GND	3
31	DNU	DNU	DNU	DNU	FP_OPN	3
30	Com3Lo	C17Lo	C18Lo	C19Lo	C20Lo	3
29	Com3Hi	C17Hi	C18Hi	C19Hi	C20Hi	3
28	DNU	C13Lo	C14Lo	C15Lo	C16Lo	3
27	C12Lo	C13Hi	C14Hi	C15Hi	C16Hi	3
26	C12Hi	Com3Lo	C09Lo	C10Lo	C111Lo	3
25	DNU	Com3Hi	C09Hi	C10Hi	C11Hi	3
24	C04Lo	C05Lo	C06Lo	C07Lo	C08Lo	3
23	C04Hi	C05Hi	C06Hi	C07Hi	C08Hi	3
22	Shield	Com3Lo	C01Lo	C02Lo	C03Lo	3
21	DNU	Com3Hi	C01Hi	C02Hi	C03Hi	3
20	C16Lo	C17Lo	C18Lo	C19Lo	C20Lo	2
19	C16Hi	C17Hi	C18Hi	C19Hi	C20Hi	2
18	Shield	Com2Lo	C13Lo	C14Lo	C15Lo	2
17	DNU	Com2Hi	C13Hi	C14Hi	C15Hi	2
16	C08Lo	C09Lo	C10Lo	C11Lo	C12Lo	2
15	C08Hi	C09Hi	C10Hi	C11Hi	C12Hi	2
14	Shield	Com2Lo	C05Lo	C06Lo	C07Lo	2
13	DNU	Com2Hi	C05Hi	C06Hi	C07Hi	2
12	C20Lo	C01Lo	C02Lo	C03Lo	C04Lo	2
11	C20Hi	C01Hi	C02Hi	C03Hi	C04Hi	2
10	Shield	Com1Lo	C17Lo	C18Lo	C19Lo	1
9	DNU	Com1Hi	C17Hi	C18Hi	C19Hi	1
8	C12Lo	C13Lo	C14Lo	C15Lo	C16Lo	1
7	C12Hi	C13Hi	C14Hi	C15Hi	C16Hi	1
6	Shield	Com1Lo	C09Lo	C10Lo	C11Lo	1
5	DNU	Com1Hi	C09Hi	C10Hi	C11Hi	1
4	C04Lo	C05Lo	C06Lo	C07Lo	C08Lo	1
3	C04Hi	C05Hi	C06Hi	C07Hi	C08Hi	1
2	Shield	Com1Lo	C01Lo	C02Lo	C03Lo	1
1	DNU	Com1Hi	C01Hi	C02Hi	C03Hi	1
Pin	**a**	**b**	**c**	**d**	**e**	**Sect.**

DNU = DO NOT USE

TABLE 11-12: VX4330 LOWER CONNECTOR (J1201) TO SM4330 LOWER CONNECTOR (J101) CROSS-REFERENCE PINOUT

FOUR WIRE MODE, NO SECTIONS JOINED, UPPER CONNECTORS

VX4330 Upper Connector (J401) Pinout						
Pin	**a**	**b**	**c**	**d**	**e**	**Sect.**
32	Enc_4b	GND	Enc_5b	GND	Enc_6b	4,5,6
31	Enc_4a	GND	Enc_5a	GND	Enc_6a	4,5,6
30	C05bLo	C05bHi	1W6aR	C10bLo	C10bHi	6
29	C04bLo	C04bHi	1W6a	C09bLo	C09bHi	6
28	C03bLo	C03bHi	Com6bHR	C08bLo	C08bHi	6
27	C02bLo	C02bHi	Com6bLR	C07bLo	C07bHi	6
26	C01bLo	C01bHi	Com6aHR	C06bLo	C06bHi	6
25	C05aLo	C05aHi	Com6aLR	C10aLo	C10aHi	6
24	C04aLo	C04aHi	Com6bH	C09aLo	C09aHi	6
23	C03aLo	C03aHi	Com6bL	C08aLo	C08aHi	6
22	C02aLo	C02aHi	Com6aH	C07aLo	C07aHi	6
21	C01aLo	C01aHi	Com6aL	C06aLo	C06aHi	6
20	C05bLo	C05bHi	1W5aR	C10bLo	C10bHi	5
19	C04bLo	C04bHi	1W5a	C09bLo	C09bHi	5
18	C03bLo	C03bHi	Com5bHR	C08bLo	C08bHi	5
17	C02bLo	C02bHi	Com5bLR	C07bLo	C07bHi	5
16	C01bLo	C01bHi	Com5aHR	C06bLo	C06bHi	5
15	C05aLo	C05aHi	Com5aLR	C10aLo	C10aHi	5
14	C04aLo	C04aHi	Com5bH	C09aLo	C09aHi	5
13	C03aLo	C03aHi	Com5bL	C08aLo	C08aHi	5
12	C02aLo	C02aHi	Com5aH	C07aLo	C07aHi	5
11	C01aLo	C01aHi	Com5aL	C06aLo	C06aHi	5
10	C05bLo	C05bHi	1W4aR	C10bLo	C10bHi	4
9	C04bLo	C04bHi	1W4a	C09bLo	C09bHi	4
8	C03bLo	C03bHi	Com4bHR	C08bLo	C08bHi	4
7	C02bLo	C02bHi	Com4bLR	C07bLo	C07bHi	4
6	C01bLo	C01bHi	Com4aHR	C06bLo	C06bHi	4
5	C05aLo	C05aHi	Com4aLR	C10aLo	C10aHi	4
4	C04aLo	C04aHi	Com4bH	C09aLo	C09aHi	4
3	C03aLo	C03aHi	Com4bL	C08aLo	C08aHi	4
2	C02aLo	C02aHi	Com4aH	C07aLo	C07aHi	4
1	C01aLo	C01aHi	Com4aL	C06aLo	C06aHi	4
Pin	**a**	**b**	**c**	**d**	**e**	**Sect.**

SM4330 Upper Connector (J100) Pinout						
Pin	**a**	**b**	**c**	**d**	**e**	**Sect.**
32	C05bLo	C06bLo	C07bLo	C08bLo	FP_GND	6
31	C05bHi	C06bHi	C07bHi	C08bHi	FP_OPN	6
30	Com6bLo	C01bLo	C02bLo	C03bLo	C04bLo	6
29	Com6bHi	C01bHi	C02bHi	C03bHi	C04bHi	6
28	DNU	C05aLo	C06aLo	C07aLo	C08aLo	6
27	C04aLo	C05aHi	C06aHi	C07aHi	C08aHi	6
26	C04aHi	Com6aLo	C01aLo	C02aLo	C03aLo	6
25	DNU	Com6aHi	C01aHi	C02aHi	C03aHi	6
24	DNU	DNU	DNU	DNU	DNU	N/A
23	DNU	DNU	DNU	DNU	DNU	N/A
22	Shield	DNU	DNU	DNU	DNU	N/A
21	DNU	DNU	DNU	DNU	DNU	N/A
20	C04bLo	C05bLo	C06bLo	C07bLo	C08bLo	5
19	C04bHi	C05bHi	C06bHi	C07bHi	C08bHi	5
18	Shield	Com5bLo	C01bLo	C02bLo	C03bLo	5
17	DNU	Com5bHi	C01bHi	C02bHi	C03bHi	5
16	C04aLo	C05aLo	C06aLo	C07aLo	C08aLo	5
15	C04aHi	C05aHi	C06aHi	C07aHi	C08aHi	5
14	Shield	Com5aLo	C01aLo	C02aLo	C03aLo	5
13	DNU	Com5aHi	C01aHi	C02aHi	C03aHi	5
12	DNU	DNU	DNU	DNU	DNU	N/A
11	DNU	DNU	DNU	DNU	DNU	N/A
10	Shield	DNU	DNU	DNU	DNU	N/A
9	DNU	DNU	DNU	DNU	DNU	N/A
8	C04bLo	C05bLo	C06bLo	C07bLo	C08bLo	4
7	C04bHi	C05bHi	C06bHi	C07bHi	C08bHi	4
6	Shield	Com4bLo	C01bLo	C02bLo	C03bLo	4
5	DNU	Com4bHi	C01bHi	C02bHi	C03bHi	4
4	C04aLo	C05aLo	C06aLo	C07aLo	C08aLo	4
3	C04aHi	C05aHi	C06aHi	C07aHi	C08aHi	4
2	Shield	Com4aLo	C01aLo	C02aLo	C03aLo	4
1	DNU	Com4aHi	C01aHi	C02aHi	C03aHi	4
Pin	**a**	**b**	**c**	**d**	**e**	**Sect.**

DNU = DO NOT USE

TABLE 11-13: VX4330 UPPER CONNECTOR (J401) TO SM4330 UPPER CONNECTOR (J100) CROSS-REFERENCE PINOUT

FOUR WIRE MODE, NO SECTIONS JOINED, LOWER CONNECTORS

VX4330 Lower Connector (J101) Pinout						
Pin	**a**	**b**	**c**	**d**	**e**	**Sect.**
32	Enc_1b	GND	Enc_2b	GND	Enc_3b	1,2,3
31	Enc_1a	GND	Enc_2a	GND	Enc_3a	1,2,3
30	C05bLo	C05bHi	1W3aR	C10bLo	C10bHi	3
29	C04bLo	C04bHi	1W3a	C09bLo	C09bHi	3
28	C03bLo	C03bHi	Com3bHR	C08bLo	C08bHi	3
27	C02bLo	C02bHi	Com3bLR	C07bLo	C07bHi	3
26	C01bLo	C01bHi	Com3aHR	C06bLo	C06bHi	3
25	C05aLo	C05aHi	Com3aLR	C10aLo	C10aHi	3
24	C04aLo	C04aHi	Com3bH	C09aLo	C09aHi	3
23	C03aLo	C03aHi	Com3bL	C08aLo	C08aHi	3
22	C02aLo	C02aHi	Com3aH	C07aLo	C07aHi	3
21	C01aLo	C01aHi	Com3aL	C06aLo	C06aHi	3
20	C05bLo	C05bHi	1W2aR	C10bLo	C10bHi	2
19	C04bLo	C04bHi	1W2a	C09bLo	C09bHi	2
18	C03bLo	C03bHi	Com2bHR	C08bLo	C08bHi	2
17	C02bLo	C02bHi	Com2bLR	C07bLo	C07bHi	2
16	C01bLo	C01bHi	Com2aHR	C06bLo	C06bHi	2
15	C05aLo	C05aHi	Com2aLR	C10aLo	C10aHi	2
14	C04aLo	C04aHi	Com2bH	C09aLo	C09aHi	2
13	C03aLo	C03aHi	Com2bL	C08aLo	C08aHi	2
12	C02aLo	C02aHi	Com2aH	C07aLo	C07aHi	2
11	C01aLo	C01aHi	Com2aL	C06aLo	C06aHi	2
10	C05bLo	C05bHi	1W1aR	C10bLo	C10bHi	1
9	C04bLo	C04bHi	1W1a	C09bLo	C09bHi	1
8	C03bLo	C03bHi	Com1bHR	C08bLo	C08bHi	1
7	C02bLo	C02bHi	Com1bLR	C07bLo	C07bHi	1
6	C01bLo	C01bHi	Com1aHR	C06bLo	C06bHi	1
5	C05aLo	C05aHi	Com1aLR	C10aLo	C10aHi	1
4	C04aLo	C04aHi	Com1bH	C09aLo	C09aHi	1
3	C03aLo	C03aHi	Com1bL	C08aLo	C08aHi	1
2	C02aLo	C02aHi	Com1aH	C07aLo	C07aHi	1
1	C01aLo	C01aHi	Com1aL	C06aLo	C06aHi	1
Pin	**a**	**b**	**c**	**d**	**e**	**Sect.**

SM4330 Lower Connector (J101) Pinout						
Pin	**a**	**b**	**c**	**d**	**e**	**Sect.**
32	C05bLo	C06bLo	C07bLo	C08bLo	FP_GND	3
31	C05bHi	C06bHi	C07bHi	C08bHi	FP_OPN	3
30	Com3bLo	C01bLo	C02bLo	C03bLo	C04bLo	3
29	Com3bHi	C01bHi	C02bHi	C03bHi	C04bHi	3
28	DNU	C05aLo	C06aLo	C07aLo	C08aLo	3
27	C04aLo	C05aHi	C06aHi	C07aHi	C08aHi	3
26	C04aHi	Com3aLo	C01aLo	C02aLo	C03aLo	3
25	DNU	Com3aHi	C01aHi	C02aHi	C03aHi	3
24	DNU	DNU	DNU	DNU	DNU	N/A
23	DNU	DNU	DNU	DNU	DNU	N/A
22	Shield	DNU	DNU	DNU	DNU	N/A
21	DNU	DNU	DNU	DNU	DNU	N/A
20	C04bLo	C05bLo	C06bLo	C07bLo	C08bLo	2
19	C04bHi	C05bHi	C06bHi	C07bHi	C08bHi	2
18	Shield	Com2bLo	C01bLo	C02bLo	C03bLo	2
17	DNU	Com2bHi	C01bHi	C02bHi	C03bHi	2
16	C04aLo	C05aLo	C06aLo	C07aLo	C08aLo	2
15	C04aHi	C05aHi	C06aHi	C07aHi	C08aHi	2
14	Shield	Com2aLo	C01aLo	C02aLo	C03aLo	2
13	DNU	Com2aHi	C01aHi	C02aHi	C03aHi	2
12	DNU	DNU	DNU	DNU	DNU	N/A
11	DNU	DNU	DNU	DNU	DNU	N/A
10	Shield	DNU	DNU	DNU	DNU	N/A
9	DNU	DNU	DNU	DNU	DNU	N/A
8	C04bLo	C05bLo	C06bLo	C07bLo	C08bLo	1
7	C04bHi	C05bHi	C06bHi	C07bHi	C08bHi	1
6	Shield	Com1bLo	C01bLo	C02bLo	C03bLo	1
5	DNU	Com1bHi	C01bHi	C02bHi	C03bHi	1
4	C04aLo	C05aLo	C06aLo	C07aLo	C08aLo	1
3	C04aHi	C05aHi	C06aHi	C07aHi	C08aHi	1
2	Shield	Com1aLo	C01aLo	C02aLo	C03aLo	1
1	DNU	Com1aHi	C01aHi	C02aHi	C03aHi	1
Pin	**a**	**b**	**c**	**d**	**e**	**Sect.**

DNU = DO NOT USE

TABLE 11-14: VX4330 LOWER CONNECTOR (J1201) TO SM4330 LOWER CONNECTOR (J101) CROSS-REFERENCE PINOUT

FOUR WIRE MODE, SECTIONS 4 AND 5 JOINED, UPPER CONNECTORS

VX4330 Upper Connector (J401) Pinout						
Pin	**a**	**b**	**c**	**d**	**e**	**Sect.**
32	Enc_4b	GND	Enc_5b	GND	Enc_6b	4,5,6
31	Enc_4a	GND	Enc_5a	GND	Enc_6a	4,5,6
30	C05bLo	C05bHi	1W6aR	C10bLo	C10bHi	6
29	C04bLo	C04bHi	1W6a	C09bLo	C09bHi	6
28	C03bLo	C03bHi	Com6bHR	C08bLo	C08bHi	6
27	C02bLo	C02bHi	Com6bLR	C07bLo	C07bHi	6
26	C01bLo	C01bHi	Com6aHR	C06bLo	C06bHi	6
25	C05aLo	C05aHi	Com6aLR	C10aLo	C10aHi	6
24	C04aLo	C04aHi	Com6bH	C09aLo	C09aHi	6
23	C03aLo	C03aHi	Com6bL	C08aLo	C08aHi	6
22	C02aLo	C02aHi	Com6aH	C07aLo	C07aHi	6
21	C01aLo	C01aHi	Com6aL	C06aLo	C06aHi	6
20	C05bLo	C05bHi	1W5aR	C10bLo	C10bHi	5
19	C04bLo	C04bHi	1W5a	C09bLo	C09bHi	5
18	C03bLo	C03bHi	Com5bHR	C08bLo	C08bHi	5
17	C02bLo	C02bHi	Com5bLR	C07bLo	C07bHi	5
16	C01bLo	C01bHi	Com5aHR	C06bLo	C06bHi	5
15	C05aLo	C05aHi	Com5aLR	C10aLo	C10aHi	5
14	C04aLo	C04aHi	Com5bH	C09aLo	C09aHi	5
13	C03aLo	C03aHi	Com5bL	C08aLo	C08aHi	5
12	C02aLo	C02aHi	Com5aH	C07aLo	C07aHi	5
11	C01aLo	C01aHi	Com5aL	C06aLo	C06aHi	5
10	C05bLo	C05bHi	1W4aR	C10bLo	C10bHi	4
9	C04bLo	C04bHi	1W4a	C09bLo	C09bHi	4
8	C03bLo	C03bHi	Com4bHR	C08bLo	C08bHi	4
7	C02bLo	C02bHi	Com4bLR	C07bLo	C07bHi	4
6	C01bLo	C01bHi	Com4aHR	C06bLo	C06bHi	4
5	C05aLo	C05aHi	Com4aLR	C10aLo	C10aHi	4
4	C04aLo	C04aHi	Com4bH	C09aLo	C09aHi	4
3	C03aLo	C03aHi	Com4bL	C08aLo	C08aHi	4
2	C02aLo	C02aHi	Com4aH	C07aLo	C07aHi	4
1	C01aLo	C01aHi	Com4aL	C06aLo	C06aHi	4
Pin	**a**	**b**	**c**	**d**	**e**	**Sect.**

SM4330 Upper Connector (J100) Pinout						
Pin	**a**	**b**	**c**	**d**	**e**	**Sect.**
32	C05bLo	C06bLo	C07bLo	C08bLo	FP_GND	6
31	C05bHi	C06bHi	C07bHi	C08bHi	FP_OPN	6
30	Com6bLo	C01bLo	C02bLo	C03bLo	C04bLo	6
29	Com6bHi	C01bHi	C02bHi	C03bHi	C04bHi	6
28	DNU	C05aLo	C06aLo	C07aLo	C08aLo	6
27	C04aLo	C05aHi	C06aHi	C07aHi	C08aHi	6
26	C04aHi	Com6aLo	C01aLo	C02aLo	C03aLo	6
25	DNU	Com6aHi	C01aHi	C02aHi	C03aHi	6
24	C08bLo	C09bLo	C10bLo	DNU	DNU	5
23	C08bHi	C09bHi	C10bHi	DNU	DNU	5
22	Shield	Com5bLo	C05bLo	C06bLo	C07bLo	5
21	DNU	Com5bHi	C05bHi	C06bHi	C07bHi	5
20	DNU	C01bLo	C02bLo	C03bLo	C04bLo	5
19	DNU	C01bHi	C02bHi	C03bHi	C04bHi	5
18	Shield	Com4bLo	C09bLo	C10bLo	DNU	4
17	DNU	Com4bHi	C09bHi	C10bHi	DNU	4
16	C04bLo	C05bLo	C06bLo	C07bLo	C08bLo	4
15	C04bHi	C05bHi	C06bHi	C07bHi	C08bHi	4
14	Shield	Com4bLo	C01bLo	C02bLo	C03bLo	4
13	DNU	Com4bHi	C01bHi	C02bHi	C03bHi	4
12	C08aLo	C09aLo	C10aLo	DNU	DNU	5
11	C08aHi	C09aHi	C10AHi	DNU	DNU	5
10	Shield	Com5aLo	C05aLo	C06aLo	C07aLo	5
9	DNU	Com5aHi	C05aHi	C06aHi	C07aHi	5
8	DNU	C01aLo	C02aLo	C03aLo	C04aLo	5
7	DNU	C01aHi	C02aHi	C03aHi	C04aHi	5
6	Shield	Com4aLo	C09aLo	C10aLo	DNU	4
5	DNU	Com4aHi	C09aHi	C10aHi	DNU	4
4	C04aLo	C05aLo	C06aLo	C07aLo	C08aLo	4
3	C04aHi	C05aHi	C06aHi	C07aHi	C08aHi	4
2	Shield	Com4aLo	C01aLo	C02aLo	C03aLo	4
1	DNU	Com4aHi	C01aHi	C02aHi	C03aHi	4
Pin	**a**	**b**	**c**	**d**	**e**	**Sect.**

DNU = DO NOT USE

TABLE 11-15: VX4330 UPPER CONNECTOR (J401) TO SM4330 UPPER CONNECTOR (J100) CROSS-REFERENCE PINOUT

FOUR WIRE MODE, SECTIONS 1 AND 2 JOINED, LOWER CONNECTORS

VX4330 Lower Connector (J1201) Pinout						
Pin	**a**	**b**	**c**	**d**	**e**	**Sect.**
32	Enc_1b	GND	Enc_2b	GND	Enc_3b	1,2,3
31	Enc_1a	GND	Enc_2a	GND	Enc_3a	1,2,3
30	C05bLo	C05bHi	1W3aR	C10bLo	C10bHi	3
29	C04bLo	C04bHi	1W3a	C09bLo	C09bHi	3
28	C03bLo	C03bHi	Com3bHR	C08bLo	C08bHi	3
27	C02bLo	C02bHi	Com3bLR	C07bLo	C07bHi	3
26	C01bLo	C01bHi	Com3aHR	C06bLo	C06bHi	3
25	C05aLo	C05aHi	Com3aLR	C10aLo	C10aHi	3
24	C04aLo	C04aHi	Com3bH	C09aLo	C09aHi	3
23	C03aLo	C03aHi	Com3bL	C08aLo	C08aHi	3
22	C02aLo	C02aHi	Com3aH	C07aLo	C07aHi	3
21	C01aLo	C01aHi	Com3aL	C06aLo	C06aHi	3
20	C05bLo	C05bHi	1W2aR	C10bLo	C10bHi	2
19	C04bLo	C04bHi	1W2a	C09bLo	C09bHi	2
18	C03bLo	C03bHi	Com2bHR	C08bLo	C08bHi	2
17	C02bLo	C02bHi	Com2bLR	C07bLo	C07bHi	2
16	C01bLo	C01bHi	Com2aHR	C06bLo	C06bHi	2
15	C05aLo	C05aHi	Com2aLR	C10aLo	C10aHi	2
14	C04aLo	C04aHi	Com2bH	C09aLo	C09aHi	2
13	C03aLo	C03aHi	Com2bL	C08aLo	C08aHi	2
12	C02aLo	C02aHi	Com2aH	C07aLo	C07aHi	2
11	C01aLo	C01aHi	Com2aL	C06aLo	C06aHi	2
10	C05bLo	C05bHi	1W1aR	C10bLo	C10bHi	1
9	C04bLo	C04bHi	1W1a	C09bLo	C09bHi	1
8	C03bLo	C03bHi	Com1bHR	C08bLo	C08bHi	1
7	C02bLo	C02bHi	Com1bLR	C07bLo	C07bHi	1
6	C01bLo	C01bHi	Com1aHR	C06bLo	C06bHi	1
5	C05aLo	C05aHi	Com1aLR	C10aLo	C10aHi	1
4	C04aLo	C04aHi	Com1bH	C09aLo	C09aHi	1
3	C03aLo	C03aHi	Com1bL	C08aLo	C08aHi	1
2	C02aLo	C02aHi	Com1aH	C07aLo	C07aHi	1
1	C01aLo	C01aHi	Com1aL	C06aLo	C06aHi	1
Pin	**a**	**b**	**c**	**d**	**e**	**Sect.**

SM4330 Lower Connector (J101) Pinout						
Pin	**a**	**b**	**c**	**d**	**e**	**Sect.**
32	C05bLo	C06bLo	C07bLo	C08bLo	FP_GND	3
31	C05bHi	C06bHi	C07bHi	C08bHi	FP_OPN	3
30	Com3bLo	C01bLo	C02bLo	C03bLo	C04bLo	3
29	Com3bHi	C01bHi	C02bHi	C03bHi	C04bHi	3
28	DNU	C05aLo	C06aLo	C07aLo	C08aLo	3
27	C04aLo	C05aHi	C06aHi	C07aHi	C08aHi	3
26	C04aHi	Com3aLo	C01aLo	C02aLo	C03aLo	3
25	DNU	Com3aHi	C01aHi	C02aHi	C03aHi	3
24	C08bLo	C09bLo	C10bLo	DNU	DNU	2
23	C08bHi	C09bHi	C10bHi	DNU	DNU	2
22	Shield	Com2bLo	C05bLo	C06bLo	C07bLo	2
21	DNU	Com2bHi	C05bHi	C06bHi	C07bHi	2
20	DNU	C01bLo	C02bLo	C03bLo	C04bLo	2
19	DNU	C01bHi	C02bHi	C03bHi	C04bHi	2
18	Shield	Com1bLo	C09bLo	C10bLo	DNU	1
17	DNU	Com1bHi	C09bHi	C10bHi	DNU	1
16	C04bLo	C05bLo	C06bLo	C07bLo	C08bLo	1
15	C04bHi	C05bHi	C06bHi	C07bHi	C08bHi	1
14	Shield	Com1bLo	C01bLo	C02bLo	C03bLo	1
13	DNU	Com1bHi	C01bHi	C02bHi	C03bHi	1
12	C08aLo	C09aLo	C10aLo	DNU	DNU	2
11	C08aHi	C09aHi	C10AHi	DNU	DNU	2
10	Shield	Com2aLo	C05aLo	C06aLo	C07aLo	2
9	DNU	Com2aHi	C05aHi	C06aHi	C07aHi	2
8	DNU	C01aLo	C02aLo	C03aLo	C04aLo	2
7	DNU	C01aHi	C02aHi	C03aHi	C04aHi	2
6	Shield	Com1aLo	C09aLo	C10aLo	DNU	1
5	DNU	Com1aHi	C09aHi	C10aHi	DNU	1
4	C04aLo	C05aLo	C06aLo	C07aLo	C08aLo	1
3	C04aHi	C05aHi	C06aHi	C07aHi	C08aHi	1
2	Shield	Com1aLo	C01aLo	C02aLo	C03aLo	1
1	DNU	Com1aHi	C01aHi	C02aHi	C03aHi	1
Pin	**a**	**b**	**c**	**d**	**e**	**Sect.**

DNU = DO NOT USE

TABLE 11-16: VX4330 LOWER CONNECTOR (J201) TO SM4330 LOWER CONNECTOR (J101) CROSS-REFERENCE PINOUT

FOUR WIRE MODE, SECTIONS 4, 5 AND 6 JOINED, UPPER CONNECTORS

VX4330 Upper Connector (J401) Pinout						
Pin	**a**	**b**	**c**	**d**	**e**	**Sect.**
32	Enc_4b	GND	Enc_5b	GND	Enc_6b	4,5,6
31	Enc_4a	GND	Enc_5a	GND	Enc_6a	4,5,6
30	C05bLo	C05bHi	1W6aR	C10bLo	C10bHi	6
29	C04bLo	C04bHi	1W6a	C09bLo	C09bHi	6
28	C03bLo	C03bHi	Com6bHR	C08bLo	C08bHi	6
27	C02bLo	C02bHi	Com6bLR	C07bLo	C07bHi	6
26	C01bLo	C01bHi	Com6aHR	C06bLo	C06bHi	6
25	C05aLo	C05aHi	Com6aLR	C10aLo	C10aHi	6
24	C04aLo	C04aHi	Com6bH	C09aLo	C09aHi	6
23	C03aLo	C03aHi	Com6bL	C08aLo	C08aHi	6
22	C02aLo	C02aHi	Com6aH	C07aLo	C07aHi	6
21	C01aLo	C01aHi	Com6aL	C06aLo	C06aHi	6
20	C05bLo	C05bHi	1W5aR	C10bLo	C10bHi	5
19	C04bLo	C04bHi	1W5a	C09bLo	C09bHi	5
18	C03bLo	C03bHi	Com5bHR	C08bLo	C08bHi	5
17	C02bLo	C02bHi	Com5bLR	C07bLo	C07bHi	5
16	C01bLo	C01bHi	Com5aHR	C06bLo	C06bHi	5
15	C05aLo	C05aHi	Com5aLR	C10aLo	C10aHi	5
14	C04aLo	C04aHi	Com5bH	C09aLo	C09aHi	5
13	C03aLo	C03aHi	Com5bL	C08aLo	C08aHi	5
12	C02aLo	C02aHi	Com5aH	C07aLo	C07aHi	5
11	C01aLo	C01aHi	Com5aL	C06aLo	C06aHi	5
10	C05bLo	C05bHi	1W4aR	C10bLo	C10bHi	4
9	C04bLo	C04bHi	1W4a	C09bLo	C09bHi	4
8	C03bLo	C03bHi	Com4bHR	C08bLo	C08bHi	4
7	C02bLo	C02bHi	Com4bLR	C07bLo	C07bHi	4
6	C01bLo	C01bHi	Com4aHR	C06bLo	C06bHi	4
5	C05aLo	C05aHi	Com4aLR	C10aLo	C10aHi	4
4	C04aLo	C04aHi	Com4bH	C09aLo	C09aHi	4
3	C03aLo	C03aHi	Com4bL	C08aLo	C08aHi	4
2	C02aLo	C02aHi	Com4aH	C07aLo	C07aHi	4
1	C01aLo	C01aHi	Com4aL	C06aLo	C06aHi	4
Pin	**a**	**b**	**c**	**d**	**e**	**Sect.**

SM4330 Upper Connector (J100) Pinout						
Pin	**a**	**b**	**c**	**d**	**e**	**Sect.**
32	C09bLo	C10bLo	DNU	DNU	FP_GND	6
31	C09bHi	C10bHi	DNU	DNU	FP_OPN	6
30	Com6bLo	C05bLo	C06bLo	C07bLo	C08bLo	6
29	Com6bHi	C05bHi	C06bHi	C07bHi	C08bHi	6
28	DNU	C01bLo	C02bLo	C03bLo	C04bLo	6
27	C10bLo	C01bHi	C02bHi	C03bHi	C04bHi	6
26	C10bHi	Com5bLo	C07bLo	C08bLo	C09bLo	5
25	DNU	Com5bHi	C07bHi	C08bHi	C09bHi	5
24	C02bLo	C03bLo	C04bLo	C05bLo	C06bLo	5
23	C02bHi	C03bHi	C04bHi	C05bHi	C06bHi	5
22	Shield	Com4bLo	C09bLo	C10bLo	C01bLo	5
21	DNU	Com4bHi	C09bHi	C10bHi	C01bHi	5
20	C04bLo	C05bLo	C06bLo	C07bLo	C08bLo	4
19	C04bHi	C05bHi	C06bHi	C07bHi	C08bHi	4
18	Shield	Com4bLo	C01bLo	C02bLo	C03bLo	4
17	DNU	Com4bHi	C01bHi	C02bHi	C03bHi	4
16	C08aLo	C09aLo	C10aLo	DNU	DNU	6
15	C08aHi	C09aHi	C10aHi	DNU	DNU	6
14	Shield	Com6aLo	C05aLo	C06aLo	C07aLo	6
13	DNU	C0m6aHi	C05aHi	C06aHi	C07aHi	6
12	C10aLo	C01aLo	C02aLo	C03aLo	C04aLo	6
11	C10aHi	C01aHi	C02aHi	C03aHi	C04aHi	6
10	Shield	Com5aLo	C07aLo	C08aLo	C09aLo	5
9	DNU	Com5aHi	C07aHi	C08aHi	C09aHi	5
8	C02aLo	C03aLo	C04aLo	C05aLo	C06aLo	5
7	C02aHi	C03aHi	C04aHi	C05aHi	C06aHi	5
6	Shield	Com4aLo	C09aLo	C10aLo	C01aLo	5
5	DNU	Com4aHi	C09aHi	C10aHi	C01aHi	5
4	C04aLo	C05aLo	C06aLo	C07aLo	C08aLo	4
3	C04aHi	C05aHi	C06aHi	C07aHi	C08aHi	4
2	Shield	Com4aLo	C01aLo	C02aLo	C03aLo	4
1	DNU	Com4aHi	C01aHi	C02aHi	C03aHi	4
Pin	**a**	**b**	**c**	**d**	**e**	**Sect.**

DNU = DO NOT USE

TABLE 11-17: VX4330 UPPER CONNECTOR (J401) TO SM4330 UPPER CONNECTOR (J100) CROSS-REFERENCE PINOUT

FOUR WIRE MODE, SECTIONS 1, 2 AND 3 JOINED, LOWER CONNECTORS

VX4330 Lower Connector (J1201) Pinout						
Pin	**a**	**b**	**c**	**d**	**e**	**Sect.**
32	Enc_1b	GND	Enc_2b	GND	Enc_3b	1,2,3
31	Enc_1a	GND	Enc_2a	GND	Enc_3a	1,2,3
30	C05bLo	C05bHi	1W3aR	C10bLo	C10bHi	3
29	C04bLo	C04bHi	1W3a	C09bLo	C09bHi	3
28	C03bLo	C03bHi	Com3bHR	C08bLo	C08bHi	3
27	C02bLo	C02bHi	Com3bLR	C07bLo	C07bHi	3
26	C01bLo	C01bHi	Com3aHR	C06bLo	C06bHi	3
25	C05aLo	C05aHi	Com3aLR	C10aLo	C10aHi	3
24	C04aLo	C04aHi	Com3bH	C09aLo	C09aHi	3
23	C03aLo	C03aHi	Com3bL	C08aLo	C08aHi	3
22	C02aLo	C02aHi	Com3aH	C07aLo	C07aHi	3
21	C01aLo	C01aHi	Com3aL	C06aLo	C06aHi	3
20	C05bLo	C05bHi	1W2aR	C10bLo	C10bHi	2
19	C04bLo	C04bHi	1W2a	C09bLo	C09bHi	2
18	C03bLo	C03bHi	Com2bHR	C08bLo	C08bHi	2
17	C02bLo	C02bHi	Com2bLR	C07bLo	C07bHi	2
16	C01bLo	C01bHi	Com2aHR	C06bLo	C06bHi	2
15	C05aLo	C05aHi	Com2aLR	C10aLo	C10aHi	2
14	C04aLo	C04aHi	Com2bH	C09aLo	C09aHi	2
13	C03aLo	C03aHi	Com2bL	C08aLo	C08aHi	2
12	C02aLo	C02aHi	Com2aH	C07aLo	C07aHi	2
11	C01aLo	C01aHi	Com2aL	C06aLo	C06aHi	2
10	C05bLo	C05bHi	1W1aR	C10bLo	C10bHi	1
9	C04bLo	C04bHi	1W1a	C09bLo	C09bHi	1
8	C03bLo	C03bHi	Com1bHR	C08bLo	C08bHi	1
7	C02bLo	C02bHi	Com1bLR	C07bLo	C07bHi	1
6	C01bLo	C01bHi	Com1aHR	C06bLo	C06bHi	1
5	C05aLo	C05aHi	Com1aLR	C10aLo	C10aHi	1
4	C04aLo	C04aHi	Com1bH	C09aLo	C09aHi	1
3	C03aLo	C03aHi	Com1bL	C08aLo	C08aHi	1
2	C02aLo	C02aHi	Com1aH	C07aLo	C07aHi	1
1	C01aLo	C01aHi	Com1aL	C06aLo	C06aHi	1
Pin	**a**	**b**	**c**	**d**	**e**	**Sect.**

SM4330 Lower Connector (J101) Pinout						
Pin	**a**	**b**	**c**	**d**	**e**	**Sect.**
32	C05bLo	C06bLo	C07bLo	C08bLo	FP_GND	3
31	C05bHi	C06bHi	C07bHi	C08bHi	FP_OPN	3
30	Com3bLo	C01bLo	C02bLo	C03bLo	C04bLo	3
29	Com3bHi	C01bHi	C02bHi	C03bHi	C04bHi	3
28	DNU	C05aLo	C06aLo	C07aLo	C08aLo	3
27	C04aLo	C05aHi	C06aHi	C07aHi	C08aHi	3
26	C04aHi	Com3aLo	C01aLo	C02aLo	C03aLo	3
25	DNU	Com3aHi	C01aHi	C02aHi	C03aHi	3
24	DNU	DNU	DNU	DNU	DNU	N/A
23	DNU	DNU	DNU	DNU	DNU	N/A
22	Shield	DNU	DNU	DNU	DNU	N/A
21	DNU	DNU	DNU	DNU	DNU	N/A
20	C04bLo	C05bLo	C06bLo	C07bLo	C08bLo	2
19	C04bHi	C05bHi	C06bHi	C07bHi	C08bHi	2
18	Shield	Com2bLo	C01bLo	C02bLo	C03bLo	2
17	DNU	Com2bHi	C01bHi	C02bHi	C03bHi	2
16	C04aLo	C05aLo	C06aLo	C07aLo	C08aLo	2
15	C04aHi	C05aHi	C06aHi	C07aHi	C08aHi	2
14	Shield	Com2aLo	C01aLo	C02aLo	C03aLo	2
13	DNU	Com2aHi	C01aHi	C02aHi	C03aHi	2
12	DNU	DNU	DNU	DNU	DNU	N/A
11	DNU	DNU	DNU	DNU	DNU	N/A
10	Shield	DNU	DNU	DNU	DNU	N/A
9	DNU	DNU	DNU	DNU	DNU	N/A
8	C04bLo	C05bLo	C06bLo	C07bLo	C08bLo	1
7	C04bHi	C05bHi	C06bHi	C07bHi	C08bHi	1
6	Shield	Com1bLo	C01bLo	C02bLo	C03bLo	1
5	DNU	Com1bHi	C01bHi	C02bHi	C03bHi	1
4	C04aLo	C05aLo	C06aLo	C07aLo	C08aLo	1
3	C04aHi	C05aHi	C06aHi	C07aHi	C08aHi	1
2	Shield	Com1aLo	C01aLo	C02aLo	C03aLo	1
1	DNU	Com1aHi	C01aHi	C02aHi	C03aHi	1
Pin	**a**	**b**	**c**	**d**	**e**	**Sect.**

DNU = DO NOT USE

TABLE 11-18: VX4330 LOWER CONNECTOR (J1201) TO SM4330 LOWER CONNECTOR (J101) CROSS-REFERENCE PINOUT

VXI*PLUG&PLAY* COMMON FUNCTION CALLS

Background

The VX4330 is part of the SurePath family of switch cards. As such, a SurePath controller card is required to communicate to this device. The SurePath controller card is installed in either the left-most switch card of a SurePath switching system or in a VX4101 MultiPaq instrument.

If the SurePath controller card is installed in a SurePath family switch, all calls made to a SurePath switch card are made through *tkvx43x0_32.dll*. If the SurePath controller is installed in a VX4101 MultiPaq device, then all function calls to a SurePath switch are made through the *tkmpscan_32.dll*. An example is shown below:

1. tkvx43x0_closeRelayVX4330 (id, "M1", 1, 5);

2. tkmpscan_closeRelayVX4330 (id, "M1", 1, 5);

Both function calls perform identical operations, in this case closing relay number 5 in Section 1 on module M1, however, the first one is called if the VX4330 is part of a SurePath system where the controller card is installed in another switch card and the second one is called if the controller card is installed in a VX4101 MultiPaq device.

Rehosting

To replace obsolete components typically requires a great deal of software effort because there are often many test program sets that need to be changed. VXI Technology has greatly simplified this task by developing a translation driver set for the SurePath family. The translation driver takes Tektronix function calls, such as in the example above and converts them to SMIP *II* calls. The result is that any code written to operate with the VX4330 can be used, without modification, when an SM4330 is installed in its place. It is important to note that to use the translation driver, all cards that were part of the SurePath system must be replaced by equivalent SMIP *II* modules (i.e. Tektronix VXI switch cards and VTI switch cards cannot be in the same chassis when using the translation driver set).

All commonly used functions are supported in the translation driver set. For those functions not supported, VTI includes the translation driver source code for custom modification or will add the functions by request. A list of all *tkvx43x0* functions related to the VX4330 supported in the translation driver set are listed in the following table. For *tkmpscan* supported functions, please refer to Section 7.4c, VX4101 SurePath Controller.

TABLE 11-19: TKVX43X0_32.DLL: SM4330 TRANSLATION DRIVER SET, SUPPORTED FUNCTIONS

Class or Window		Function
Initialize		tkvx43x0_init
Auto Initialize		tkvx43x0_autoConnectToFirst
Auto Initialize		tkvx43x0_autoConnectToSlot
Auto Initialize		tkvx43x0_autoConnectToLA
Auto Initialize		tkvx43x0_autoConnectToAll
Daughter Board		tkvx43x0_ID_slaveModules
Daughter Board		tkvx43x0_catalogModules
Daughter Board		tkvx43x0_moduleNames
Daughter Board		tkvx43x0_TTL_triggers
Daughter Board		tkvx43x0_status
Daughter Board	Querys	tkvx43x0_queryModuleNumber
Daughter Board	Querys	tkvx43x0_queryTTL_triggers
Daughter Board	Querys	tkvx43x0_queryStatusOperation
TKVX4330	Configure	tkvx43x0_configureScanner
TKVX4330	Configure	tkvx43x0_disjoinScanners
TKVX4330	Configure	tkvx43x0_joinScanners
TKVX4330	Configure	tkvx43x0_scannerMuxMode
TKVX4330	Configure	tkvx43x0_closeRelayVX4330
TKVX4330	Configure	tkvx43x0_closeRelayList
TKVX4330	Configure	tkvx43x0_openRelayVX4330
TKVX4330	Configure	tkvx43x0_openRelayList
TKVX4330	Configure	tkvx43x0_queryRelayVX4330
TKVX4330	Configure	tkvx43x0_openAll
TKVX4330	Scan	tkvx43x0_scan
TKVX4330	Scan	tkvx43x0_abort
TKVX4330	Scan	tkvx43x0_triggerStatusSetting
TKVX4330	Scan	tkvx43x0_triggerSetup
TKVX4330	Scan	tkvx43x0_trigger
TKVX4330	Relay Delay	tkvx43x0_closeDelay
TKVX4330	Relay Delay	tkvx43x0_openDelay
Utility	Error Handling	tkvx43x0_error_message
Utility	Error Handling	tkvx43x0_error_query
Utility		tkvx43x0_reset
Utility		tkvx43x0_self_test
Utility		tkvx43x0_revision_query
Utility		tkvx43x0_getSlotList
Utility		tkvx43x0_getSlotandLAList
Utility		tkvx43x0_getSlotNumber
Utility		tkvx43x0_getInstrDesc
Utility		tkvx43x0_getSlotandLAList
Utility		tkvx43x0_getManufacturerID
Utility		tkvx43x0_getModelCode
Utility		tkvx43x0_getVisaRev
Utility		tkvx43x0_sleep
Close		tkvx43x0_close

Exceptions

1.) tkvx43x0_powerFailure is not supported. If called, this function will return an error. The SM4330 uses non-latching relays and all relays will return to their default state if power is removed from the chassis.

2.) The VX4330 scanner is divided into 6 sections, while the SM4330 is divided into 16 sections. Since there is not a 1 - 1 mapping between the two cards, the SM4330 is limited to supporting the following two configurations using the _joinScanners function.

No Sections joined
Sections 1 and 2 (and/or 4 and 5) joined
Sections 1, 2 and 3 (and/or 4, 5 and 6) joined

Please contact the factory for additional configuration support.

SECTION 12

VX4101A TO VTI4101A: DMM/COUNTER

SPECIFICATION COMPARISONS (DMM)

Tektronix VX4101A: 5.5 Digit DMM			VXI Technology Inc. VTI4101A: 6.5 Digit DMM		
DIGITS	**APERTURE**	**READINGS/SEC**	**DIGITS**	**APERTURE**	**READINGS/SEC**
6.5	Not Available	N/A	6.5	166.7 ms to 2 s	2
5.5	16.67 ms	≤ 60	5.5	1.667 ms to 20 ms	150
4.5	< 16.67 ms	> 60	4.5	0.5 ms	500
DESCRIPTION			**DESCRIPTION**		
4096 Measurements			64,000 measurements (256,000 Optional)		
RANGE	**MAX READING**	**RESOLUTION**	**RANGE**	**MAX READING**	**RESOLUTION**
30 mV	± 30.0000 mV	100 nV	100 mV	± 120 mV	100 nV
300 mV	± 300.000 mV	1 µV	1 V	± 1.2 V	1 µV
3 V	± 3.00000 V	10 µV	10 V	± 12 V	10 µV
30 V	±-30.0000 V	100 µV	100 V	± 120 V	100 µV
300 V	±300.000 V	1 mV	300 V	± 300 V	100 µV
RANGE	**RESISTANCE**		**RANGE**	**RESISTANCE**	
30 mV, 300 mV, 3 V	10 MΩ ± 5% or >10 GΩ		100 mV, 1 V and 10 V	1 GΩ	
30 V, 300 V	10 MΩ ±5%		100 V and 300 V	10 MΩ	
RANGE	**MAX READING**	**RESOLUTION**	**RANGE**	**MAX READING**	**RESOLUTION**
30 mV	30.0000 mV	100 nV	100 mV ac	120 mV ac	1 µV
300 mV	300.000 mV	1 µV	1 V ac	1.2 V ac	10 µV
3 V	3.00000 V	10 µV	10 V ac	12 V ac	100 µV
30 V	30.0000 V	100 µV	100 V ac	120 V ac	1 mV
300 V	300.000 V	1 mV	300 V ac	300 V ac	1 mV
RANGE	**MAX READING**	**RESOLUTION**	**RANGE**	**MAX READING**	**RESOLUTION**
30 Ω	30 Ω	100 µΩ	20 Ω	20 Ω	100 µΩ
300 Ω	300 Ω	1 mΩ	200 Ω	200 Ω	100 µΩ
3 kΩ	3 kΩ	10 mΩ	2 kΩ	2 kΩ	1 mΩ
30 kΩ	30 kΩ	100 mΩ	20 kΩ	20 kΩ	10 mΩ
300 kΩ	300 kΩ	1 Ω	200 kΩ	200 kΩ	100 mΩ
3 MΩ	3 MΩ	10 Ω	2 MΩ	2 MΩ	1 Ω
30 MΩ	30 MΩ	100 Ω	20 MΩ	20 MΩ	100 Ω
300 MΩ	300 MΩ	1 kΩ (nominal)			
RANGE	**MAX READING**	**RESOLUTION**	**RANGE**	**MAX READING**	**RESOLUTION**
150 mA	±150.0000 mA	0.5 µA	10 mA	12 mA	10 nA
1.0 A	±1.00000 A	5 µA	100 mA	120 mA	100 nA
			1.0 A	1.2 A	1 µA

SPECIFICATION COMPARISONS (CTR)

Specifications	Tektronix VX4101A	VXI Technology VTI4101A
ON-BOARD MEMORY	1000 measurements	32 k measurements, 128k option
NUMBER OF CHANNELS	2	2
FREQUENCY Range Resolution	CHANNEL 1 AND 2 < 0.1 µHz to 250 MHz (500 MHz with Option 1C) 10 digits @ 1 s	CHANNEL 1 AND 2 < 1 µHz to 200 MHz 9 digits/s measuring time
PERIOD Range Resolution Least Significant Digit	CHANNEL 1 AND 2 4 ns to >10e6 s 2 ns to >10e6 s with Option 1C 10 digits @ 1 s 250 ps or ps/N rounded downward to the nearest decade	CHANNEL 1 AND 2 6 ns to 10e6 s [averaged] 20 ns to 10e7 s [single] 1 ns [single] 9 digits/s measuring time
FREQUENCY Range Resolution	CHANNEL 3 (OPTION 2C) 300 MHz to 3 GHz with Option 2C 10 digits @ 1 s	CHANNEL 3 70 MHz to 2.5 GHz Max. 10 digits resolution
TIME INTERVAL Frequency Range	CHANNEL 1 AND 2 Up to 250 MHz (500 MHz with option 1C) Up to 150 MHz for Time Interval with Delay	CHANNEL 1 AND 2 0 ns to 10e7 s 1 ns
PHASE Range Units	CHANNEL 1 AND 2 (-180) degrees to 360 degrees Degrees or Radians	CHANNEL 1 AND 2 0.00 to (+360) degrees 10 mHz to 100 MHz
TOTALIZER Range Least Significant Digit	CHANNEL 1 AND 2 1 to 2e52 (4.5 x 10e15) One count	 0 to 10e14 counts
RISE/FALL TIME Frequency Range Range	CHANNEL 1 AND 2 < 250 MHz 4 ns to 10e6 s 1 ns to 10e6s with Optional 1C	CHANNEL 1 AND 2 < 200 MHz 6 ns to 10e7 s 1 µHz to 100 MHz

INTERFACING TO THE MODULE

The DMM portion of the VTI4101A uses a 15-pin D-Sub style connector for front panel interfacing. There is a removable 2 A fuse for overcurrent protection. A mating connector is provided with the unit upon shipment. The Counter/Timer portion of the device uses five SMB style connectors for front panel interfacing.

In many ATE applications, a termination panel for the instrumentation is utilized. This termination panel will have connectors that mate to the UUT or an intermediate test fixture. A termination panel may take the form of an Interconnect Assembly (ICA) made by manufacturers such as Virginia Panel or Macpanel. In either case, it is desirable to maintain the same I/O layout at the panel to avoid costly redesign of test fixturing or UUT cable assemblies.

VXI Technology offers a couple of options that prevent the need for any interface panel to UUT redesign as follows:

- wired funnel assemblies that mate directly to the VTI4101A front panel
- custom cabling between VTI4101A front panel and ICA/termination panel

For customers who plan on developing their own cabling between the VTI4101A and the termination panel, this section provides a cross-reference pinout table between the VX4101A and the VTI4101A in Table 12-1.

TABLE 12-1: PINOUT CROSS-REFERENCE TABLE VX4101A TO VTI4101A

Signal Name	VX4101A
Voltage/2-wire Ω + ; 4-wire Ω +	DMM.6
Voltage/2-wire Ω - ; 4-wire Ω -	DMM.1
4-wire Ω (sense +)	DMM.9
4-wire Ω (sense -)	DMM.5
Current +	DMM.7
Current -	DMM.3
Trigger Input	J4.A24
Ch 1	Ch 1
Ch 2	Ch 2
Ch 3	Ch 3
ARM	ARM

Signal Name	VTI4101A
Voltage/2-wire Ω + ; 4-wire Ω +	J200.7
Voltage/2-wire Ω - ; 4-wire Ω -	J200.6
4-wire Ω (sense +)	J200.15
4-wire Ω (sense -)	J200.14
Current +	J200.12
Current -	J200.11
Trigger Input	J200.1
Ch 1	J202
Ch 2	J203
Ch 3	J201
ARM	J206

VXI*PLUG&PLAY* COMMON FUNCTION CALLS

Background

The VX4101A MultiPaq module combines several instrument functions in a single slot. The MultiPaq module includes a 5.5 digit DMM, 250 MHz Universal Counter Timer and an optional SurePath switch controller card. In addition, there are options for DAC's and digital I/O. The VMIP line of instrumentation offered by VXI Technology allows three independent instruments to be housed in a single slot carrier. The VTI4101A emulates the VX4101A DMM and Counter/Timer functions of the device in a single slot in addition to supporting SurePath controller functions.

Communication Protocols

The VX4101A supported both synchronous and asynchronous protocols. The VTI4101A only supports synchronous (IEEE 488.2 compliant) mode.

Fast Data Channels

The VX4101A supports FDC channel communication protocol. The VTI4101A does not and will return an error if an FDC function is called.

Rehosting

To replace obsolete components typically requires a great deal of software effort because there are often many test program sets that need to be changed. VXI Technology has greatly simplified this task by developing a translation driver set for the MultiPaq device. The translation driver takes Tektronix function calls, and converts them to VMIP calls. The result is that any code written to operate with the VX4101A can be used, without modification, when an VTI4101A is installed in its place.

The VX4101A driver set included libraries for the 4101A (global commands), DMM, Counter/Timer and SurePath controller (instrument specific commands). Since each device has its own logical address, most of the global commands do not apply to the VTI4101A. Supported function calls are listed in the following tables.

TABLE 12-2: TKVX4101_32.DLL: VTI4101A TRANSLATION DRIVER SET, SUPPORTED FUNCTIONS, VX4101A

Class or Window			Function
Initialize			tkvx4101_init
Auto Initialize			tkvx4101_autoConnectToFirst
Auto Initialize			tkvx4101_autoConnectToSlot
Auto Initialize			tkvx4101_autoConnectToLA
Auto Initialize			tkvx4101_autoConnectToAll
Measure	Configure Measurement		tkvx4101_confSelectInstrument
Measure	Configure Measurement		tkvx4101_readSystemConfiguration
Measure	Configure Measurement		tkvx4101_readSelectedInstrument
Measure	Configure Measurement		tkvx4101_getConfigureInfo
Measure	Configure Measurement		tkvx4101_readOutputSrcsAvailable
Measure	Configure Measurement		tkvx4101_confTTLTrgSource
Measure	Configure Measurement		tkvx4101_readTTLTrigSrcSetting
Measure	Configure Measurement		tkvx4101_confPeriodTrigSource
Measure	Configure Measurement		tkvx4101_readPeriodTrigSource
Measure	Configure Measurement		tkvx4101_confTriggerAbort
Measure	Configure Measurement		tkvx4101_confRoscSource
Measure	Configure Measurement		tkvx4101_confCalRoscValue
Measure	Configure Measurement		tkvx4101_confQueryTimeout
Measure	Read	Initiate	tkvx4101_initSWTrigger
Utility	Communication		tkvx4101_error_message
Utility	Communication		tkvx4101_error_query
Utility	Communication		tkvx4101_multipaqWrite
Utility	Communication		tkvx4101_multipaqRead
Utility	Error Handling		tkvx4101_error_message
Utility	Error Handling		tkvx4101_error_query
Utility	Status		tkvx4101_confPresetStatusRegs
Utility	Status		tkvx4101_confStatusQueue
Utility	Status		tkvx4101_getErrorOrEvent
Utility	Status		tkvx4101_eventReqEnable
Utility	Status		tkvx4101_setOperEnableReg
Utility	Status		tkvx4101_readOperEnableReg
Utility	Status		tkvx4101_readOperCondReg
Utility	Status		tkvx4101_readOperEventReg
Utility	Status		tkvx4101_setOperPosTransFilter
Utility	Status		tkvx4101_readOperPosTransFilter
Utility	Status		tkvx4101_setOperNegTransFilter
Utility	Status		tkvx4101_readOperNegTransFilter
Utility	Status		tkvx4101_CLS
Utility	Status		tkvx4101_readStatus
Utility			tkvx4101_reset
Utility			tkvx4101_self_test
Utility			tkvx4101_revision_query
Utility			tkvx4101_getSlotList
Utility			tkvx4101_getSlotandLAList
Utility			tkvx4101_getManufacturerID
Utility			tkvx4101_getModelCode
Utility			tkvx4101_getVisaRev
Close			tkvx4101_close

Exceptions (DMM)

1.) Fast data channel and asynchronous protocol functions are not supported in this driver set. Calls to these functions will return an error.

2.) If a multipaqWrite function is issued to anything but the counter, an instrument error will most likely occur.

3.) The translation driver set will emulate the Status functions as closely as possible. There may be instances where returned data does not completely match the response that would be received from a VX4101A.

TABLE 12-3: TKMPDMM_32.DLL: VTI4101A TRANSLATION DRIVER SET, SUPPORTED FUNCTIONS, DMM

Class or Window			Function
Initialize			tkmpdmm_initialize
Measure	Configure		tkmpdmm_confVoltageMeasurement
Measure	Configure		tkmpdmm_confCurrentMeasurement
Measure	Configure		tkmpdmm_confResMeasurement
Measure	Read	Initiate	tkmpdmm_Initiate
Measure	Read	Initiate	tkmpdmm_InitiateContinuous
Measure	Read	Initiate	tkmpdmm_queryInitiate
Measure	Read	Initiate	tkmpdmm_abort
Measure	Read	Fetch	tkmpdmm_readVoltageMeasurement
Measure	Read	Fetch	tkmpdmm_readCurrentMeasurement
Measure	Read	Fetch	tkmpdmm_readResMeasurement
Measure	Read	Fetch	tkmpdmm_fetch
Measure	Read	Fetch	tkmpdmm_fetchCount
Measure	Read	Fetch	tkmpdmm_readData
Source	Configure Source		tkmpdmm_setInputImpedance (*)
Source	Configure Source		tkmpdmm_setMeasurementFunction
Source	Configure Source		tkmpdmm_setInputVoltageRange
Source	Configure Source		tkmpdmm_setInputCurrentRange (*)
Source	Configure Source		tkmpdmm_setInputResRange (*)
Source	Configure Source		tkmpdmm_setAutoRange
Source	Configure Source		tkmpdmm_setAperture
Source	Configure Source		tkmpdmm_setNPLCycles
Source	Configure Source		tkmpdmm_setResolution
Source	Configure Source		tkmpdmm_setRdgsPerSec
Source	Configure Source		tkmpdmm_setCount
Source	Configure Source		tkmpdmm_setACBandwidth
Source	Configure Source	Trigger	tkmpdmm_triggerImmediate
Source	Configure Source	Trigger	tkmpdmm_listTriggerSources
Source	Configure Source	Trigger	tkmpdmm_listDelayTriggers
Source	Configure Source	Trigger	tkmpdmm_listFixedTriggers
Source	Configure Source	Trigger	tkmpdmm_setTriggerSource
Source	Configure Source	Trigger	tkmpdmm_queryTriggerSource
Source	Configure Source	Trigger	tkmpdmm_setTriggerCount
Source	Configure Source	Trigger	tkmpdmm_queryTriggerCount
Source	Configure Source	Trigger	tkmpdmm_setTriggerMode
Source	Configure Source	Trigger	tkmpdmm_queryTriggerMode
Source	Configure Source	Calculate	tkmpdmm_calculateEnvelopeData
Source	Configure Source	Calculate	tkmpdmm_queryEnvelopeLimits
Source	Configure Source	Calculate	tkmpdmm_calculateUpperLimit
Source	Configure Source	Calculate	tkmpdmm_queryUpperLimit
Source	Configure Source	Calculate	tkmpdmm_calculateLowerLimit
Source	Configure Source	Calculate	tkmpdmm_queryLowerLimit
Source	Configure Source	Calculate	tkmpdmm_queryFailureCount
Source	Configure Source	Calculate	tkmpdmm_calculateReportData
Source	Configure Source	Calculate	tkmpdmm_calculateAverageData
Source	Configure Source	Calculate	tkmpdmm_calculateMedian

Class or Window			Function
Source	Configure Source	Calculate	tkmpdmm_calculateMinimum
Source	Configure Source	Calculate	tkmpdmm_calculateMaximum
Source	Configure Source	Calculate	tkmpdmm_calculateStdDeviation
Source	Configure Source	Calculate	tkmpdmm_calculateVariance
Source	Configure Source	Calculate	tkmpdmm_setHistCount
Source	Configure Source	Calculate	tkmpdmm_queryHistCount
Source	Configure Source	Calculate	tkmpdmm_setHistInterval
Source	Configure Source	Calculate	tkmpdmm_queryHistInterval
Source	Configure Source	Calculate	tkmpdmm_setHistRange
Source	Configure Source	Calculate	tkmpdmm_queryHistRange
Source	Configure Source	Calculate	tkmpdmm_queryHistAutoRange
Source	Configure Source	Calculate	tkmpdmm_calculateHistogram
Source	Configure Source	Calculate	tkmpdmm_queryHistBelowMin
Source	Configure Source	Calculate	tkmpdmm_queryHistAboveMax
Source	Query Settings		tkmpdmm_queryLineFrequency
Source	Query Settings		tkmpdmm_queryAutoZero
Source	Query Settings		tkmpdmm_queryInputImpedance
Source	Query Settings		tkmpdmm_queryMeasurementFunction
Source	Query Settings		tkmpdmm_queryVoltageRange
Source	Query Settings		tkmpdmm_queryCurrentRange
Source	Query Settings		tkmpdmm_queryResistanceRange
Source	Query Settings		tkmpdmm_queryAutoRange
Source	Query Settings		tkmpdmm_queryAperture
Source	Query Settings		tkmpdmm_queryRdgsPerSec
Source	Query Settings		tkmpdmm_NPLCycles
Source	Query Settings		tkmpdmm_queryResolution
Source	Query Settings		tkmpdmm_queryCount
Source	Query Settings		tkmpdmm_readConfiguration
Source	Query Settings		tkmpdmm_queryACBandwidth
Utility	Error Handling		tkmpdmm_error_query
Utility	Error Handling		tkmpdmm_error_message
Utility	Status		tkmpdmm_setOperEnableReg
Utility	Status		tkmpdmm_readOperEnableReg
Utility	Status		tkmpdmm_setOperPosTransFilter
Utility	Status		tkmpdmm_readOperPosTransFilte
Utility	Status		tkmpdmm_setOperNegTransFilter
Utility	Status		tkmpdmm_readOperNegTransFilte
Utility	Status		tkmpdmm_readOperCondReg
Utility	Status		tkmpdmm_readOperEventReg
Utiltity	Calibrate		tkmpdmm_setLineFrequency
Utiltity	Calibrate		tkmpdmm_calibrationValue
Utiltity	Calibrate		tkmpdmm_setAutoZero
Utiltity	Calibrate		tkmpdmm_calibrationSource
Utility			tkmpdmm_sleep
Utility			tkmpdmm_self_test
Utility			tkmpdmm_revision_query

1.) The VTI4101A has fixed input impedances. Calls to this function will not change these impedances.

DC Voltage: 1 GΩ (≤ 10Vrange)
10 MΩ (≥ 100V range)
AC Voltage: 1 MΩ (in parallel with 50 pF)

2.) The VTI4101A has different input resistance ranges than the VX4101A.

VTI4101A Resistance Range	VX4101A Resistance Range
20 Ω	30 Ω
200 Ω	300 Ω
2 kΩ	3 kΩ
20 kΩ	30 kΩ
200 kΩ	300 kΩ
2 MΩ	3 MΩ
20 MΩ	30 MΩ
	300 MΩ

Measurements over 20 MΩ will return an 'out-of-range' reading

3.) 1 A and autorange are supported current ranges. Setting to 150 mA range will put device into autorange.

4.) Trigger Delay functions are not supported and will return an error.

5.) Handshaking functions are not supported and will return an error.

6.) FDC and legacy functions are not supported and will return an error.

TABLE 12-4: TKMPCTR_32.DLL: VTI4101A TRANSLATION DRIVER SET, SUPPORTED FUNCTIONS, COUNTER

Class or Window			Function
Initialize			tkmpctr_initialize
Measure	Configure		tkmpctr_confVoltMeasurement
Measure	Configure		tkmpctr_confFreqMeasurement
Measure	Configure		tkmpctr_confPeriodMeasurement
Measure	Configure		tkmpctr_confRatioMeasurement
Measure	Configure		tkmpctr_confRTimeMeasurement
Measure	Configure		tkmpctr_confFTimeMeasurement
Measure	Configure		tkmpctr_confPWMeasurement
Measure	Configure		tkmpctr_confTimeIntMeasurement
Measure	Configure		tkmpctr_confTotalizeMeasurement
Measure	Configure		tkmpctr_confDutyCycleMeas
Measure	Configure		tkmpctr_confPhaseMeasurement
Measure	Read	Initiate	tkmpctr_Initiate
Measure	Read	Initiate	tkmpctr_InitiateContinuous
Measure	Read	Initiate	tkmpctr_queryInitiate
Measure	Read	Initiate	tkmpctr_abort
Measure	Read	Fetch	tkmpctr_measVoltMeasurement
Measure	Read	Fetch	tkmpctr_measFreqMeasurement
Measure	Read	Fetch	tkmpctr_measPeriodMeasurement
Measure	Read	Fetch	tkmpctr_measRatioMeasurement
Measure	Read	Fetch	tkmpctr_measRTimeMeasurement
Measure	Read	Fetch	tkmpctr_measFTimeMeasurement
Measure	Read	Fetch	tkmpctr_measPWMeasurement
Measure	Read	Fetch	tkmpctr_measTimeIntMeasurement
Measure	Read	Fetch	tkmpctr_measTotalizeMeasurement
Measure	Read	Fetch	tkmpctr_measDutyCycle
Measure	Read	Fetch	tkmpctr_measPhaseMeasurement
Measure	Read	Fetch	tkmpctr_fetchMeasurementData
Measure	Read	Fetch	tkmpctr_fetchMeasurementCount
Measure	Read	Fetch	tkmpctr_readMeasurementData
Source	Configure Source		tkmpctr_setupInput
Source	Configure Source		tkmpctr_autoSetup
Source	Configure Source		tkmpctr_setOffset
Source	Configure Source		tkmpctr_setRelativeOffset
Source	Configure Source		tkmpctr_setCoupling
Source	Configure Source		tkmpctr_setImpedance
Source	Configure Source		tkmpctr_setLPFState
Source	Configure Source		tkmpctr_setLPFilter
Source	Configure Source		tkmpctr_setAttenuation
Source	Configure Source		tkmpctr_setGain
Source	Configure Source		tkmpctr_setComparatorSlope
Source	Configure Source		tkmpctr_setRelComparatorLevel
Source	Configure Source		tkmpctr_setComparatorHysterisis
Source	Configure Source		tkmpctr_setRelCompHysterisis
Source	Configure Source		tkmpctr_setMeasurementFunction
Source	Configure Source		tkmpctr_setCount

Class or Window			Function
Source	Configure Source		tkmpctr_setMode
Source	Configure Source		tkmpctr_setAperture
Source	Configure Source		tkmpctr_setEvents
Source	Configure Source		tkmpctr_setTimeIntDelayState
Source	Configure Source		tkmpctr_setTimeIntDelay
Source	Configure Source		tkmpctr_setTimeIntervalDelay
Source	Configure Source		tkmpctr_setPhaseAngleUnits
Source	Configure Source		tkmpctr_setReferenceOscillator
Source	Configure Source		tkmpctr_setAperture
Source	Configure Source	Arm	tkmpctr_ArmImmediate
Source	Configure Source	Arm	tkmpctr_listArmSources
Source	Configure Source	Arm	tkmpctr_listDelayArmSources
Source	Configure Source	Arm	tkmpctr_listFixedArmSources
Source	Configure Source	Arm	tkmpctr_setArmSource
Source	Configure Source	Arm	tkmpctr_queryArmSource
Source	Configure Source	Arm	tkmpctr_setArmDelay
Source	Configure Source	Arm	tkmpctr_queryArmDelay
Source	Configure Source	Arm	tkmpctr_setArmCount
Source	Configure Source	Arm	tkmpctr_queryArmCount
Source	Configure Source	Arm	tkmpctr_setArmMode
Source	Configure Source	Arm	tkmpctr_queryArmMode
Source	Configure Source	Arm	tkmpctr_setEXTArmSlope
Source	Configure Source	Arm	tkmpctr_queryEXTArmSlope
Source	Configure Source	Arm	tkmpctr_setEXTArmLevel
Source	Configure Source	Arm	tkmpctr_queryEXTArmLevel
Source	Configure Source	Arm	tkmpctr_setOutputTrigSource
Source	Configure Source	Arm	tkmpctr_queryOutTrigSource
Source	Configure Source	Calculate	tkmpctr_calculateAverageData
Source	Configure Source	Calculate	tkmpctr_calculateEnvelopeData
Source	Configure Source	Calculate	tkmpctr_queryEnvelope
Source	Configure Source	Calculate	tkmpctr_queryFailureCount
Source	Configure Source	Calculate	tkmpctr_calculateUpperLimit
Source	Configure Source	Calculate	tkmpctr_queryUpperLimit
Source	Configure Source	Calculate	tkmpctr_calculateLowerLimit
Source	Configure Source	Calculate	tkmpctr_queryLowerLimit
Source	Configure Source	Calculate	tkmpctr_calculateReportData
Source	Configure Source	Calculate	tkmpctr_calculateMedian
Source	Configure Source	Calculate	tkmpctr_calculateMinimum
Source	Configure Source	Calculate	tkmpctr_calculateMaximum
Source	Configure Source	Calculate	tkmpctr_calculateStdDeviation
Source	Configure Source	Calculate	tkmpctr_calculateVariance
Source	Configure Source	Calculate	tkmpctr_setHistCount
Source	Configure Source	Calculate	tkmpctr_queryHistCount
Source	Configure Source	Calculate	tkmpctr_setHistInterval
Source	Configure Source	Calculate	tkmpctr_queryHistInterval
Source	Configure Source	Calculate	tkmpctr_setHistRange
Source	Configure Source	Calculate	tkmpctr_queryHistRange
Source	Configure Source	Calculate	tkmpctr_queryHistAutoRange
Source	Configure Source	Calculate	tkmpctr_calculateHistogram
Source	Configure Source	Calculate	tkmpctr_queryHistBelowMin
Source	Configure Source	Calculate	tkmpctr_queryHistAboveMax
Source	Configure Source	Query Settings	tkmpctr_queryAutoSetup
Source	Configure Source	Query Settings	tkmpctr_queryOffsetVoltage

Class or Window			Function
Source	Configure Source	Query Settings	tkmpctr_queryRelativeOffset
Source	Configure Source	Query Settings	tkmpctr_queryInputCoupling
Source	Configure Source	Query Settings	tkmpctr_queryImpedance
Source	Configure Source	Query Settings	tkmpctr_queryLPFilter
Source	Configure Source	Query Settings	tkmpctr_queryLPFState
Source	Configure Source	Query Settings	tkmpctr_queryAttenuation
Source	Configure Source	Query Settings	tkmpctr_queryGain
Source	Configure Source	Query Settings	tkmpctr_queryComparatorLevel
Source	Configure Source	Query Settings	tkmpctr_queryComparatorSlope
Source	Configure Source	Query Settings	tkmpctr_queryCompHysteresis
Source	Configure Source	Query Settings	tkmpctr_queryRelComparatorLevel
Source	Configure Source	Query Settings	tkmpctr_queryRelCompHysteresis
Source	Configure Source	Query Settings	tkmpctr_queryCount
Source	Configure Source	Query Settings	tkmpctr_queryMeasureFunction
Source	Configure Source	Query Settings	tkmpctr_queryAperture
Source	Configure Source	Query Settings	tkmpctr_queryEvents
Source	Configure Source	Query Settings	tkmpctr_queryMode
Source	Configure Source	Query Settings	tkmpctr_queryTimeIntDelayState
Source	Configure Source	Query Settings	tkmpctr_queryTimeIntervalDelay
Source	Configure Source	Query Settings	tkmpctr_queryTINTDelayEvents
Source	Configure Source	Query Settings	tkmpctr_readConfiguration
Source	Configure Source	Query Settings	tkmpctr_queryRefOsc
Source	Configure Source	Query Settings	tkmpctr_queryRefOscFreq
Source	Configure Source	Query Settings	tkmpctr_queryPhaseAngleUnit
Utility	Error Handling		tkmpctr_error_query
Utility	Error Handling		tkmpctr_error_message
Utility	Status		tkmpctr_setOperEnableReg
Utility	Status		tkmpctr_readOperEnableReg
Utility	Status		tkmpctr_setOperPosTransFilter
Utility	Status		tkmpctr_readOperPosTransFilter
Utility	Status		tkmpctr_setOperNegTransFilter
Utility	Status		tkmpctr_readOperNegTransFilter
Utility	Status		tkmpctr_readOperCondReg
Utility	Status		tkmpctr_readOperEventReg
Utility	Calibrate		tkmpctr_calibrateARMValue
Utility	Calibrate		tkmpctr_calibrateDelay
Utility	Calibrate		tkmpctr_calibrateDTI
Utility	Calibrate		tkmpctr_calibrationValue
Utility	Calibrate		tkmpctr_calibrateHysteresis
Utility	Calibrate		tkmpctr_calibrateLFCO
Utility	Calibrate		tkmpctr_calibrateLinearity
Utility	Calibrate		tkmpctr_cal3Bias
Utility	Calibrate		tkmpctr_calibrateZero
Utility	Calibrate		tkmpctr_calReferenceOscillator
Utility			tkmpctr_reset
Utility			tkmpctr_self_test
Utility			tkmpctr_revision_query
Utility			tkmpctr_sleep

Exceptions (CTR)

None

In the Tektronix SurePath family of switch modules, at least one SurePath controller card must be installed to ensure proper communications. The controller card may be installed in one of the switch modules, or it may be installed in the VX4101A MultiPaq device. If it is installed in one of the switch cards, the corresponding driver layer is the *tkvx43x0_32.dll*, which is addressed in the individual module sections. If the controller card is installed in the MultiPaq, the corresponding driver layer is the *tkmpscan_32.dll*. The VTI translation driver set includes both SurePath driver layers. The supported functions for the tkmpscan_32 translation are listed below.

TABLE 12-5: TKMPSCAN_32.DLL: VTI4101A TRANSLATION DRIVER SET, SUPPORTED FUNCTIONS, SUREPATH

Class or Window			Function
Initialize SurePath			tkmpscan_initialize
Master			tkmpscan_ID_slaveModules
Master			tkmpscan_catalogModules
Master			tkmpscan_moduleNames
Master			tkmpscan_readTriggerSources
Master			tkmpscan_queryModuleNumber
Common Functions			tkmpscan_closeRelayList
Common Functions			tkmpscan_openRelayList
Common Functions			tkmpscan_openAll
Common Functions			tkmpscan_powerFailure
Common Functions	Scan		tkmpscan_scan
Common Functions	Scan		tkmpscan_abortScanList
Common Functions	Scan		tkmpscan_triggerSetup
Common Functions	Scan		tkmpscan_initializeTrigger
Common Functions	Scan		tkmpscan_executeTrigger
Common Functions	Relay Delay		tkmpscan_closeDelay
Common Functions	Relay Delay		tkmpscan_openDelay
TKVX4320	Configure		tkmpscan_closeRelayVX4320
TKVX4320	Configure		tkmpscan_queryRelayVX4320
TKVX4330	Configure		tkmpscan_configureScanner
TKVX4330	Configure		tkmpscan_disjoinScanners
TKVX4330	Configure		tkmpscan_joinScanner
TKVX4330	Configure		tkmpscan_scannerMuxMode
TKVX4330	Configure		tkmpscan_closeRelayVX4330
TKVX4330	Configure		tkmpscan_openRelayVX4330
TKVX4330	Configure		tkmpscan_queryRelayVX4330
TKVX4350	Configure		tkmpscan_closeRelayVX4350
TKVX4350	Configure		tkmpscan_openRelayVX4350
TKVX4350	Configure		tkmpscan_queryRelayVX4350
TKVX4351	Configure		tkmpscan_configureModeVX4351
TKVX4351	Configure		tkmpscan_closeRelayVX4351
TKVX4351	Configure		tkmpscan_openRelayVX4351
TKVX4351	Configure		tkmpscan_queryRelayVX4351
TKVX4380	Configure		tkmpscan_closeRelayVX4380
TKVX4380	Configure		tkmpscan_openRelayVX4380
TKVX4380	Configure		tkmpscan_queryRelayVX4380
Utility	Error Handling		tkmpscan_error_query
Utility	Error Handling		tkmpscan_error_message
Utility			tkmpscan_reset
Utility			tkmpscan_self_test
Utility			tkmpscan_revision_query

Exceptions

1.) Status functions are not supported within the SMIP *II* family of switch cards.

SECTION 13

73A308 TO VTI73A308: 80 CHANNEL OPEN COLLECTOR I/O MODULE

SPECIFICATION COMPARISONS

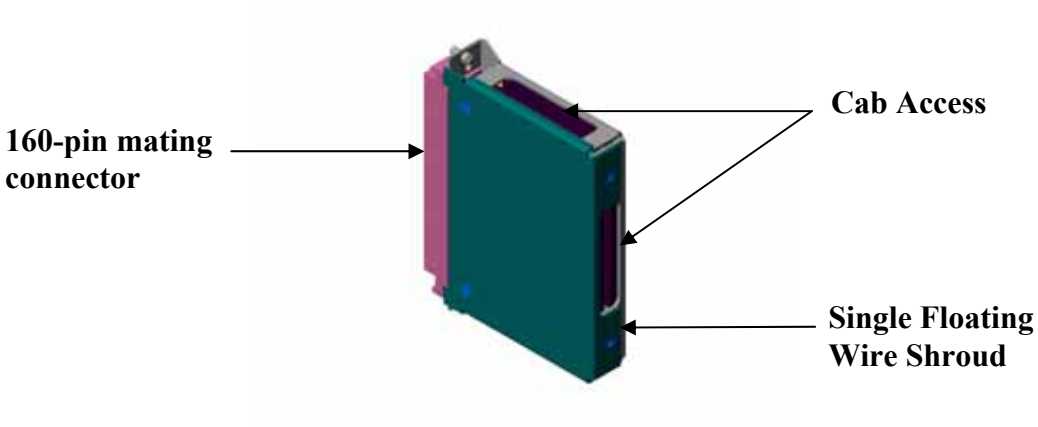
GENERAL SPECIFICATIONS	Tektronix 73A308	VXI Technology VTI73A308
MODEL TYPE	Open Collector I/O	Open Collector I/O
CONFIGURATION	80 Channel, 300 mA Open Collector Outputs	96 Channel, 300 mA Open Collector Outputs
INTERFACE TYPE	Message Based, SCPI, IEEE 488.2	Register Based
VXI REVISION LEVEL	1.4	1.4
INSTRUMENT DRIVERS	WIN framework (Rev. 4.0) WIN95 framework (Rev. 4.0) WINNT framework (Rev. 4.0)	 WIN95 framework (Rev. 4.0) WINNT framework (Rev. 4.0)
MODULE SIZE	Single-wide, C-size	Single-wide, C-size
ELECTRICAL SPECIFICATIONS		
MAXIMUM SINK CURRENT (PER CHANNEL)	300 mA	300 mA
MAXIMUM SINK CURRENT (∑ ACTIVE CHANNELS)	20 A	30 A
MAXIMUM SWITCHING VOLTAGE	50 V dc	60 V dc
MAXIMUM OUTPUT LEVEL (300 mA)	0.5 V dc	0.5 V dc
COMMAND TO OUTPUT DELAY	180 μs typical	5 μs typical

INTERFACING TO THE MODULE

The SM73A308 has one 160-pin high density DIN connector on its front panel for I/O interfacing. Mating connector and pin part numbers are referenced below. These parts can be ordered directly from VXI Technology or the manufacturer listed in the table.

ACCESSORIES			
52-0236-000: Connector Kit (Includes 160 Pin Connector & Retaining Hardware)			
Desc: Connector Kit	Mfgr.: VXI Tech.	Mfgr P/N: 52-0236-000	Contact Info: 949-955-1VXI/www.vxitech.com
Desc: Connector	Mfgr.: ERNI	Mfgr P/N: 024070	Contact Info: 804-530-5012/www.ernicomponents.com
Desc: Retaining Hardware	Mfgr.: VXI Tech.	Mfgr P/N: 41-0298-000	Contact Info: 949-955-1VXI/www.vxitech.com
52-0237-000: Strain Relief Brackets			
Desc: Strain Relief Brackets	Mfgr.: VXI Tech.	Mfgr P/N: 52-0237-000	Contact Info: 949-955-1VXI/www.vxitech.com
52-0110-000: 10-Pin Cable Assembly			
Desc: 6 ft. 24GA Teflon, 10 Crimp Pins	Mfgr.: VXI Tech.	Mfgr P/N: 52-0110-000	Contact Info: 949-955-1VXI/www.vxitech.com
52-0235-000: Floating Wire Shroud (Does Not Include Connector Pins)			
Desc: Floating Wire Shroud	Mfgr.: VXI Tech.	Mfgr P/N: 52-0235-000	Contact Info: 949-955-1VXI/www.vxitech.com
52-0109-001: Crimp Pins (500 per Reel)			
Desc: Crimp Pins	Mfgr.: ERNI	Mfgr P/N: 014729	Contact Info: 804-530-5012/www.ernicomponents.com
52-0109-000: Lose Crimp Pins (100 per Bag)			
Desc: Lose Crimp Pins	Mfgr.: VXI Tech.	Mfgr P/N: 52-0109-000	Contact Info: 949-955-1VXI/www.vxitech.com
46-0010-000: Crimp Tool			
Desc: Crimp Tool	Mfgr.: ERNI	Mfgr P/N: 014374	Contact Info: 804-530-5012/www.ernicomponents.com
46-0011-000: Extraction Tool			
Desc: Extraction Tool	Mfgr.: ERNI	Mfgr P/N: 471555	Contact Info: 804-530-5012/www.ernicomponents.com

The single floating wire shroud assembly is used to provide added strain relief. Refer to figure below.



In many ATE applications, a termination panel for the instrumentation is utilized. This termination panel will have connectors that mate to the UUT or an intermediate test fixture. A termination panel may take the form of an Interconnect Assembly (ICA) made by manufacturers such as Virginia Panel or Macpanel. In either case, it is desirable to maintain the same I/O layout at the panel to avoid costly redesign of test fixturing or UUT cable assemblies.

VXI Technology offers a couple of options that prevent the need for any interface panel to UUT redesign as follows:

- wired funnel assemblies that mate directly to the SM73A308 front panel
- custom cabling between SM73A308 front panel and ICA/termination panel

For customers who plan on developing their own cabling between the SM73A308 and the termination panel, this section provides a cross-reference pinout table between the 73A308 and the SM73A308 in Table 13-1 and Table 13-2.

				Tektronix 73A308			VTI73A308		
Bank	**Digit**	**BCD Bit**	**Relay Driver**	**Output Pin**	**Clamp Pin**	**Gnd Pins**	**Output Pin**	**Clamp Pin**	**Gnd Pins**
0	R_0	1	0	P4.36	P4.50		J101.A1	J101.D1	J101.D2, J101D3, J101.D4
		2	1	P4.3			J101.A2		
		4	2	P4.19			J101.A3		
		8	3	P4.2			J101.A4		
	R_1	1	4	P4.35			J101.A5		
		2	5	P4.1			J101.A6		
		4	6	P4.34			J101.A7		
		8	7	P4.18			J101.A8		
1	R_2	1	8	P4.40	P4.50		J101.A9	J101.E1	J101.E2, J101.E3, J101.E4
		2	9	P4.24			J101.A10		
		4	10	P4.7			J101.A11		
		8	11	P4.23			J101.A12		
	R_3	1	12	P4.39			J101.A13		
		2	13	P4.6			J101.A14		
		4	14	P4.38			J101.A15		
		8	15	P4.22			J101.A16		
2	R_4	1	16	P4.43	P4.17	P4.4, P4.5, P4.8, P4.11, P4.14, P4.20, P4.21	J101.B1	J101.D5	J101.D6, J101.D7, J101.D8
		2	17	P4.27			J101.B2		
		4	18	P4.10			J101.B3		
		8	19	P4.26			J101.B4		
	R_5	1	20	P4.42			J101.B5		
		2	21	P4.9			J101.B6		
		4	22	P4.41			J101.B7		
		8	23	P4.25			J101.B8		
3	R_6	1	24	P4.46	P4.17	P4.37	J101.B9	J101.E5	J101.E6, J101.E7, J101.E8
		2	25	P4.30			J101.B10		
		4	26	P4.13			J101.B11		
		8	27	P4.29			J101.B12		
	R_7	1	28	P4.45			J101.B13		
		2	29	P4.12			J101.B14		
		4	30	P4.44			J101.B15		
		8	31	P4.28			J101.B16		
4	R_8	1	32	P4.49	P4.17		J101.C1	J101.D9	J101.D10, J101.D11, J101.D12
		2	33	P4.33			J101.C2		
		4	34	P4.16			J101.C3		
		8	35	P4.32			J101.C4		
	R_9	1	36	P4.48			J101.C5		
		2	37	P4.15			J101.C6		
		4	38	P4.47			J101.C7		
		8	39	P4.31			J101.C8		

TABLE 13-1: PINOUT CROSS-REFERENCE TABLE (BANKS 0 - 4)

				Tektronix 73A308			VTI73A308		
Bank	**Digit**	**BCD Bit**	**Relay Driver**	**Output Pin**	**Clamp Pin**	**Gnd Pin**	**Output Pin**	**Clamp Pin**	**Gnd Pin**
5	R_{10}	1	40	P5.36	P5.50		J100.C9	J100.E9	J100.E10, J100.E11, J100.E12
		2	41	P5.3			J100.C10		
		4	42	P5.19			J100.C11		
		8	43	P5.2			J100.C12		
	R_{11}	1	44	P5.35			J100.C13		
		2	45	P5.1			J100.C14		
		4	46	P5.34			J100.C15		
		8	47	P5.18			J100.C16		
6	R_{12}	1	48	P5.40	P5.50		J100.A17	J100.D13	J100.D14, J100.D15, J100.D16
		2	49	P5.24			J100.A18		
		4	50	P5.7			J100.A19		
		8	51	P5.23			J100.A20		
	R_{13}	1	52	P5.39			J100.A21		
		2	53	P5.6			J100.A22		
		4	54	P5.38			J100.A23		
		8	55	P5.22			J100.A24		
7	R_{14}	1	56	P5.43	P5.17	P5.4, P5.5, P5.8, P5.11, P5.14, P5.20, P5.21, P5.37	J100.A25	J100.E13	J100.E14, J100.E15, J100.E16
		2	57	P5.27			J100.A26		
		4	58	P5.10			J100.A27		
		8	59	P5.26			J100.A28		
	R_{15}	1	60	P5.42			J100.A29		
		2	61	P5.9			J100.A30		
		4	62	P5.41			J100.A31		
		8	63	P5.25			J100.A32		
8	R_{16}	1	64	P5.46	P5.17		J100.B17	J100.D17	J100.D18, J100.D19, J100.D20
		2	65	P5.30			J100.B18		
		4	66	P5.13			J100.B19		
		8	67	P5.29			J100.B20		
	R_{17}	1	68	P5.45			J100.B21		
		2	69	P5.12			J100.B22		
		4	70	P5.44			J100.B23		
		8	71	P5.28			J100.B24		
9	R_{18}	1	72	P5.49	P5.17		J100.B25	J100.E17	J100.E18, J100.E19, J100.E20
		2	73	P5.33			J100.B26		
		4	74	P5.16			J100.B27		
		8	75	P5.32			J100.B28		
	R_{19}	1	76	P5.48			J100.B29		
		2	77	P5.15			J100.B30		
		4	78	P5.47			J100.B31		
		8	79	P5.31			J100.B32		

TABLE 13-2: PINOUT CROSS-REFERENCE TABLE (BANKS 5 - 9)

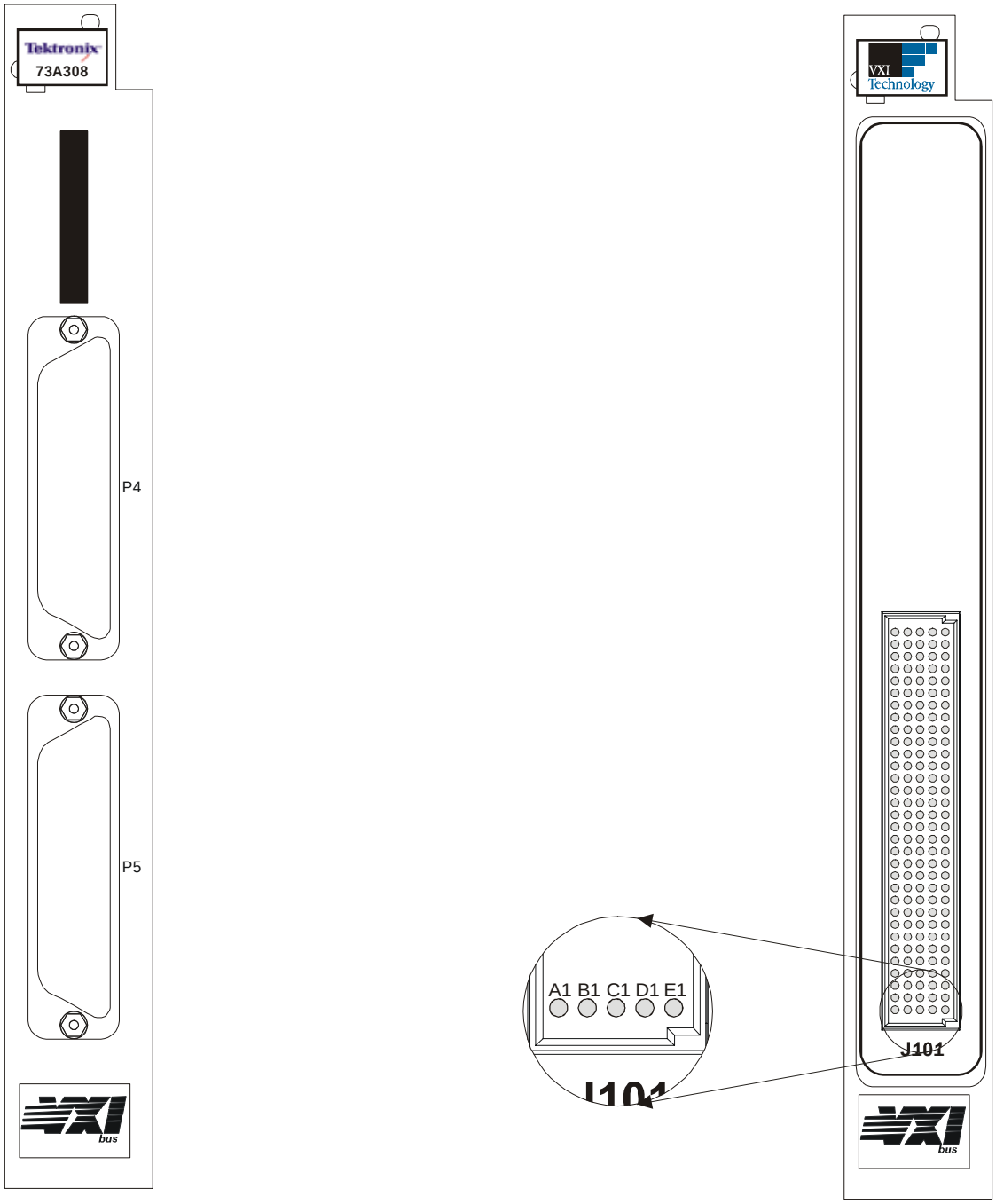


FIGURE 13-1: PINOUT CROSS-REFERENCE (FRONT PANEL DIAGRAM) 73A308 TO VTI73A308

VXI*PLUG&PLAY* COMMON FUNCTION CALLS

Rehosting

To replace obsolete components typically requires a great deal of software effort because there are often many test program sets that need to be changed. VXI Technology has greatly simplified this task by developing a translation driver set for the 73A308. The translation driver takes function calls to the 73A308 and converts them to VTI73A308 calls. The result is that any code written to operate with the 73A308 can be used, without modification, when an VTI73A308 is installed in its place.

TABLE 13-3: TK73A308_32.DLL: VTI73A308 TRANSLATION DRIVER SET, SUPPORTED FUNCTIONS

Class or Window		Function
Initialize		tk73a308_init
Auto Initialize		tk73a308_autoConnectToFirst
Auto Initialize		tk73a308_autoConnectToSlot
Auto Initialize		tk73a308_autoConnectToLA
Auto Initialize		tk73a308_autoConnectToAll
Source		tk73a308_controlRelayDriver
Source	Configure Source	tk73a308_configDataBuffering
Source	Configure Source	tk73a308_configInterrupts
Source	Configure Source	tk73a308_enableRelayDriverOutputs
Source	Configure Source	tk73a308_configTrigger
Source	Initiate	tk73a308_openIndividualRelay
Source	Initiate	tk73a308_closeIndividualRelay
Source	Initiate	tk73a308_openRelayBank
Source	Initiate	tk73a308_closeRelayBank
Source	Initiate	tk73a308_openCloseMultipleRelays
Source	Initiate	tk73a308_pulseTTLTRGLine
Utility	Error Handling	tk73a308_error_query
Utility	Error Handling	tk73a308_error_message
Utility	Status	tk73a308_queryEnableStatus
Utility	Status	tk73a308_queryRelayDriverStatus
Utility	Status	tk73a308_queryRelayDriverStatusAll
Utility	Status	tk73a308_queryTriggerConfig
Utility	Status	tk73a308_queryTriggerOccurance
Utility		tk73a308_reset
Utility		tk73a308_self_test
Utility		tk73a308_revision_query
Utility		tk73a308_getSlotList
Utility		tk73a308_getSlotandLAList
Utility		tk73a308_getSlotNumber
Utility		tk73a308_getLogicalAddress
Utility		tk73a308_getInstrDesc
Utility		tk73a308_getManufacturerID
Utility		tk73a308_getModelCode
Utility		tk73a308_getVisaRev
Utility		tk73a308_sleep
Close		tk73a308_close

Exceptions

1.) tk73a308_ConfigureDataBuffering function is not supported. The vti73a308 does not provide buffering of input commands. It is a register based device. A call to the tk73a308_ConfigureDataBuffering function will return a VI_SUCCESS if bufferMode is set to tk73a308_OFF, and an error if the bufferMode is set to tk73a308_ON.

2.) Tk73a308_write and tk73a308_read functions are not supported. The vti73a308 is a register based device. If either of these functions are called, an error is returned.

3.) In the tk73a308_configIOnterrupts function, tk73a308_INT_PROGRAM and tk73a308_INT_PROGRAM_TTLTRIG are not supported because the vti73a308 is not capable of programming errors, and tk73a308_INT_TTLTRG is not supported because the vti73a308 is not capable of relay state updates on a backplane trigger. Calling the tk73a308_configInterrupts function with any of these values for the interruptCondition parameter will return an error.

SECTION 14

VX4801 TO VTI4801: 48 CHANNEL DIGITAL I/O TTL/CMOS VMIP W/NONE/VM1548/NONE

SPECIFICATION COMPARISONS

GENERAL SPECIFICATIONS	Tektronix VX4801	VXI Technology VTI4801
MODEL TYPE	Isolated TTL I/O Module	TTL I/O Module
CONFIGURATION	48 Channel, TTL I/O Lines	48 Channel, TTL I/O Lines
INTERFACE TYPE	Message Based, SCPI, IEEE 488.2	Register Based
VXI REVISION LEVEL	1.4	1.4
INSTRUMENT DRIVERS	WIN framework (Rev. 4.0) WIN95 framework (Rev. 4.0) WINNT framework (Rev. 4.0)	 WIN95 framework (Rev. 4.0) WINNT framework (Rev. 4.0)
MODULE SIZE	Single-wide, C-size	Single-wide, C-size
ELECTRICAL SPECIFICATIONS		
OUTPUT HIGH VOLTAGE (V_{OH})	> 4.4 V	> 3.1 V @ -15 mA
OUTPUT LOW VOLTAGE (V_{OL})	< 0.4 V	< 0.55 V@ 64 mA
OUTPUT LOW CURRENT (I_{OL})	< 24 mA	< 64 mA
INPUT HIGH VOLTAGE (V_{IH})	> 2.0 V	> 2.0 V
INPUT LOW VOLTAGE (V_{IL})	> 0.8 V	> 0.8 V
INPUT CURRENT	230 μA maximum	(V_{IN} = 2.7 V) < 70 mA (V_{IN} = 5.0 V) < 1 mA (V_{IN} = 0.0 V) < 1 mA
TRI-STATE LEAKAGE	0.5 μA typical (5.0 μA maximum)	N/A
ISOLATION RESISTANCE	> 100 x 10^6	N/A
ISOLATION VOLTAGE	> 500 V dc	N/A

INTERFACING TO THE MODULE

The VTI4801 has one, 68-pin high density SCSI connector on its front panel for I/O interfacing. A mating connector is shipped with the assembly. The outputs of the VTI4801 do not go into tri-state mode. Tri-state mode is emulated by programming the bi-directional ports as inputs. **Also, it is important to note that the VTI4801 data ports are not isolated**.

In many ATE applications, a termination panel for the instrumentation is utilized. This termination panel will have connectors that mate to the UUT or an intermediate test fixture. A termination panel may take the form of an Interconnect Assembly (ICA) made by manufacturers such as Virginia Panel or Macpanel. In either case, it is desirable to maintain the same I/O layout at the panel to avoid costly redesign of test fixturing or UUT cable assemblies.

VXI Technology offers a couple of options that prevent the need for any interface panel to UUT redesign as follows:

- wired funnel assemblies that mate directly to the VTI4801 front panel
- custom cabling between VTI4801 front panel and ICA/termination panel

For customers who plan on developing their own cabling between the VTI4801 and the termination panel, this section provides a cross-reference pinout table between the VX4801 and the VTI4801 in Table 14-1 and Table 14-2.

FIGURE 14-1: PINOUT CROSS-REFERENCE (FRONT PANEL DIAGRAM) VX4801 TO VTI4801

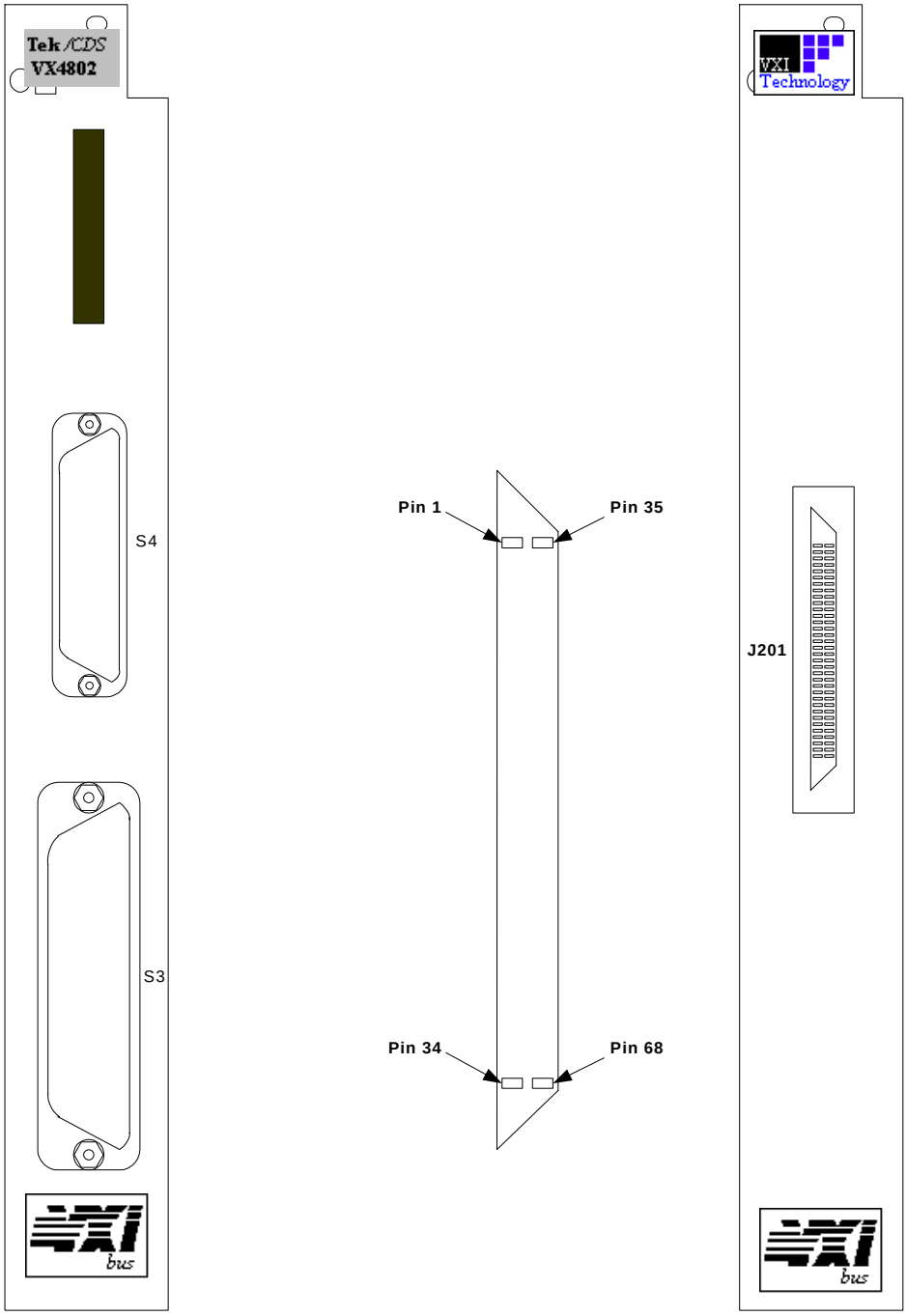


TABLE 14-1: PINOUT CROSS-REFERENCE TABLE VX4801 TO VTI4801 (I/O AND GND LINES)

		VX4801	VTI4801
Bit	**Byte**	**Pinout**	**Pinout**
0	**0**	S3.7	J201.2
1		S3.8	J201.3
2		S3.9	J201.4
3		S3.10	J201.5
4		S3.11	J201.6
5		S3.12	J201.7
6		S3.13	J201.8
7		S3.14	J201.9
0	**1**	S3.20	J201.13
1		S3.21	J201.14
2		S3.22	J201.15
3		S3.23	J201.16
4		S3.24	J201.17
5		S3.25	J201.18
6		S3.26	J201.19
7		S3.27	J201.20
0	**2**	S3.30	J201.24
1		S3.31	J201.25
2		S3.32	J201.26
3		S3.33	J201.27
4		S3.34	J201.28
5		S3.35	J201.29
6		S3.36	J201.30
7		S3.37	J201.31
	Gnd Pins	S3.3; S3.4; S3.15 S3.18; S3.28; S3.29 S3.38; S3.40; S3.41 S3.50;	J201.1; J201.12 J201.23; J201.34 J201.35; J201.46 J201.57; J201.68

		VX4801	VTI4801
Bit	**Byte**	**Pinout**	**Pinout**
0	**3**	S3.42	J201.36
1		S3.43	J201.37
2		S3.44	J201.38
3		S3.45	J201.39
4		S3.46	J201.40
5		S3.47	J201.41
6		S3.48	J201.42
7		S3.49	J201.43
0	**4**	S4.3	J201.47
1		S4.4	J201.48
2		S4.5	J201.49
3		S4.6	J201.50
4		S4.7	J201.51
5		S4.8	J201.52
6		S4.9	J201.53
7		S4.10	J201.54
0	**5**	S4.16	J201.58
1		S4.17	J201.59
2		S4.18	J201.60
3		S4.19	J201.61
4		S4.20	J201.62
5		S4.21	J201.63
6		S4.22	J201.64
7		S4.23	J201.65
	Gnd Pins	S4.1; S4.2; S4.11 S4.14; S4.15; S4.24 S4.25	J201.1; J201.12 J201.23; J201.34 J201.35; J201.46 J201.57; J201.68

TABLE 14-2: PINOUT CROSS-REFERENCE TABLE VX4801 TO VTI 4801 (HANDSHAKE/TRI-STATE LINES)

SIGNAL	VX4801	VTI4801
Ready for Data Out	S3.1	J201.11
Data Ready In	S3.2	J201.22
Data Available In	S3.5	J201.33
Data Ack Out	S3.6	J201.45
ETS0	S3.16	J201.10
ETS1	S3.19	J201.21
ETS2	S3.39	J201.32
ETS3	S3.17	J201.44
ETS4	S4.12	J201.55
ETS5	S4.13	J201.66

VXI*PLUG&PLAY* COMMON FUNCTION CALLS

Rehosting

To replace obsolete components typically requires a great deal of software effort because there are often many test program sets that need to be changed. VXI Technology has greatly simplified this task by developing a translation driver set for the VX4801. The translation driver takes function calls to the VX4801 and converts them to VTI4801 calls. The result is that any code written to operate with the VX4801 can be used, without modification, when an VTI4801 is installed in its place.

All commonly used functions are supported in the translation driver set. For those functions not supported, VTI includes the translation driver source code for custom modification or will add the functions by request. A list of all tkvx4801 functions supported in the translation driver set are listed in the following table.

TABLE 14-3: TKVX4801_32.DLL: VTI4801 TRANSLATION DRIVER SET, SUPPORTED FUNCTIONS

Class or Window			Function
Initialize			tkvx4801_init
Auto Initialize			tkvx4801_autoConnectToFirst
Auto Initialize			tkvx4801_autoConnectToSlot
Auto Initialize			tkvx4801_autoConnectToLA
Auto Initialize			tkvx4801_autoConnectToAll
Measure	Configure Measurement		tkvx4801_setByteMode
Measure	Configure Measurement		tkvx4801_setUpdateCondition
Measure	Configure Measurement		tkvx4801_setTristateMode
Measure	Configure Measurement		tkvx4801_externalTristateEnable
Measure	Configure Measurement		tkvx4801_setPulseStrobeSense
Measure	Read	Initiate	tkvx4801_defineMask
Measure	Read	Initiate	tkvx4801_setOutputData
Measure	Read	Initiate	tkvx4801_outputData
Measure	Read	Fetch	tkvx4801_queryStatus
Measure	Read	Fetch	tkvx4801_readInputs
Measure	Read	Fetch	tkvx4801_readByteData
Utility	Error Handling		tkvx4801_error_query
Utility	Error Handling		tkvx4801_error_message
Utility	Status		tkvx4801_queryEnableStatus
Utility	Status		tkvx4801_queryRelayDriverStatus
Utility	Status		tkvx4801_queryRelayDriverStatusAll
Utility	Status		tkvx4801_queryTriggerConfig
Utility	Status		tkvx4801_queryTriggerOccurance
Utility			tkvx4801_reset
Utility			tkvx4801_self_test
Utility			tkvx4801_revision_query
Utility			tkvx4801_getSlotList
Utility			tkvx4801_getSlotandLAList
Utility			tkvx4801_getSlotNumber
Utility			tkvx4801_getLogicalAddress
Utility			tkvx4801_getInstrDesc
Utility			tkvx4801_getManufacturerID

Class or Window			Function
Utility			tkvx4801_getModelCode
Utility			tkvx4801_getVisaRev
Utility			tkvx4801_sleep
Close			tkvx4801_close

Exceptions

1.) Use of the vti4801 Driver requires the vtvm1548 driver to be installed on the system.

2.) The active levels for tri-state control on the VTI4801 are not selectable. A call to this function will return an error if the passed parameter attempts to set the Tri-State level to tkvx4801_ACTIVE_LEVEL_LOW. The External Tri-State Level is only valid in the tkvx4801_ACTIVE_LEVEL_HIGH state. When the VM1548 is in the INPUT mode, the device is in Input when the I/O line is High for a given port, and Output when the I/O line is low.

3.) Interrupt configuration via tkvx4801_enableDisableInterrupt does not support both RFDHandshake and DRDHandshake simultaneously.

4.) Simultaneous Input and Output Strobe updates are not supported.

5.) The Logical Address for the VTI4801 is the base logical address of the C-size module. There will be two consecutive Logical Addresses following this which will be consumed.

6.) The Base Logical Address MUST be set to a multiple of 4.

7.) The tkvx4801_queryStatus function is currently not implemented on the vti4801 Driver. Consult the factory for updates if this function is required for your application.

8.) There is no Soft Front Panel implementing the vti4801 driver. For instrument functionality evaluation, use the vtvm1548 Driver Soft Front Panel.

SECTION 15

VX4802 TO VTI4802: 96 CHANNEL DIGITAL I/O TTL/CMOS VMIP W/NONE/VM1548/VM1548

SPECIFICATION COMPARISONS

GENERAL SPECIFICATIONS	Tektronix VX4802	VXI Technology VTI4802
MODEL TYPE	TTL I/O Module	TTL I/O Module
CONFIGURATION	80 Channel, TTL I/O Lines	96 Channel, TTL I/O Lines
INTERFACE TYPE	Message Based, SCPI, IEEE 488.2	Register Based
VXI REVISION LEVEL	1.4	1.4
INSTRUMENT DRIVERS	WIN framework (Rev. 4.0) WIN95 framework (Rev. 4.0) WINNT framework (Rev. 4.0)	 WIN95 framework (Rev. 4.0) WINNT framework (Rev. 4.0)
MODULE SIZE	Single-wide, C-size	Single-wide, C-size
ELECTRICAL SPECIFICATIONS		
OUTPUT HIGH VOLTAGE (V_{OH})	> 4.4 V	> 3.1 V @ -15 mA
OUTPUT LOW VOLTAGE (V_{OL})	< 0.4 V	< 0.55 V@ 64 mA
OUTPUT LOW CURRENT (I_{OL})	< 24 mA	< 64 mA
INPUT HIGH VOLTAGE (V_{IH})	> 2.0 V	> 2.0 V
INPUT LOW VOLTAGE (V_{IL})	> 0.8 V	> 0.8 V
INPUT CURRENT	230 μA maximum	(V_{IN} = 2.7 V) < 70 mA (V_{IN} = 5.0 V) < 1 mA (V_{IN} = 0.0 V) < 1 mA
TRI-STATE LEAKAGE	0.5 μA typical (5.0 μA maximum)	N/A

INTERFACING TO THE MODULE

The VTI4802 has two, 68-pin high density SCSI connectors on its front panel for I/O interfacing. Two mating connectors are shipped with the assembly. The outputs of the VTI4802 do not go into tri-state mode. Tri-state mode is simulated by programming the bi-directional ports as inputs.

In many ATE applications, a termination panel for the instrumentation is utilized. This termination panel will have connectors that mate to the UUT or an intermediate test fixture. A termination panel may take the form of an Interconnect Assembly (ICA) made by manufacturers such as Virginia Panel or Macpanel. In either case, it is desirable to maintain the same I/O layout at the panel to avoid costly redesign of test fixturing or UUT cable assemblies.

VXI Technology offers a couple of options that prevent the need for any interface panel to UUT redesign as follows:

- wired funnel assemblies that mate directly to the VTI4802 front panel
- custom cabling between VTI4802 front panel and ICA/termination panel

For customers who plan on developing their own cabling between the VTI4802 and the termination panel, this section provides a cross-reference pinout table between the VX4802 and the VTI4802 in Table 15-1 and Table 15-2.

FIGURE 15-1: PINOUT CROSS-REFERENCE (FRONT PANEL DIAGRAM) VX4802 TO VTI4802

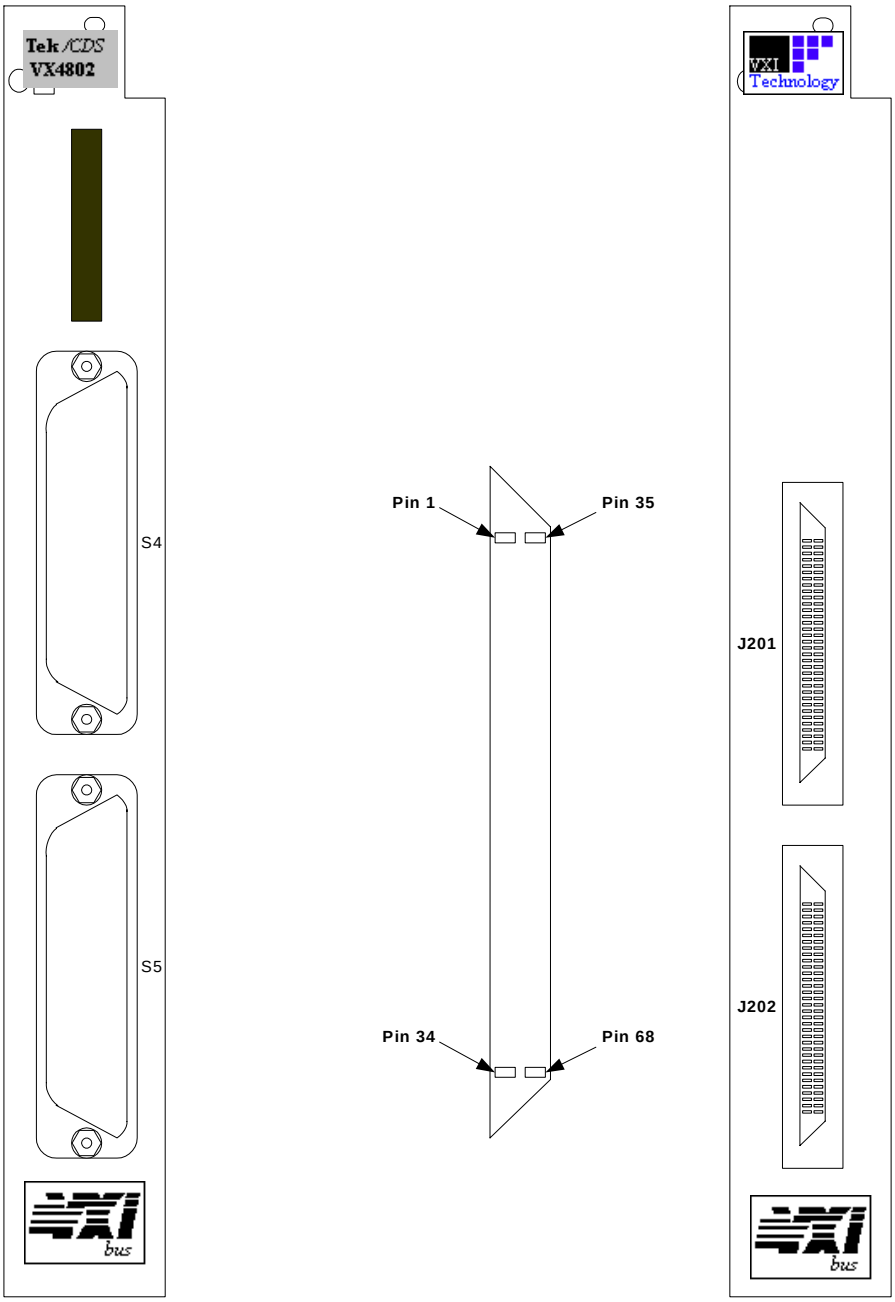


TABLE 15-1: PINOUT CROSS-REFERENCE TABLE VX4802 TO VTI4802 (I/O AND GND LINES)

Byte	Bit	VX4802 Pinout	VTI4802 Pinout
0	0	S4.1	J201.2
	1	S4.2	J201.3
	2	S4.3	J201.4
	3	S4.4	J201.5
	4	S4.5	J201.6
	5	S4.6	J201.7
	6	S4.7	J201.8
	7	S4.8	J201.9
1	0	S4.10	J201.13
	1	S4.11	J201.14
	2	S4.12	J201.15
	3	S4.13	J201.16
	4	S4.14	J201.17
	5	S4.15	J201.18
	6	S4.16	J201.19
	7	S4.17	J201.20
2	0	S4.19	J201.24
	1	S4.20	J201.25
	2	S4.21	J201.26
	3	S4.22	J201.27
	4	S4.23	J201.28
	5	S4.24	J201.29
	6	S4.25	J201.30
	7	S4.26	J201.31
3	0	S4.28	J201.36
	1	S4.29	J201.37
	2	S4.30	J201.38
	3	S4.31	J201.39
	4	S4.32	J201.40
	5	S4.33	J201.41
	6	S4.34	J201.42
	7	S4.35	J201.43
4	0	S4.37	J201.47
	1	S4.38	J201.48
	2	S4.39	J201.49
	3	S4.40	J201.50
	4	S4.41	J201.51
	5	S4.42	J201.52
	6	S4.43	J201.53
	7	S4.44	J201.54
	Gnd Pins	S4.9; S4.18; S4.27 S4.36; S4.45	J201.1; J201.12 J201.23; J201.34 J201.35; J201.46 J201.57; J201.68

Byte	Bit	VX4802 Pinout	VTI4802 Pinout
5	0	S5.1	J202.2
	1	S5.2	J202.3
	2	S5.3	J202.4
	3	S5.4	J202.5
	4	S5.5	J202.6
	5	S5.6	J202.7
	6	S5.7	J202.8
	7	S5.8	J202.9
6	0	S5.10	J202.13
	1	S5.11	J202.14
	2	S5.12	J202.15
	3	S5.13	J202.16
	4	S5.14	J202.17
	5	S5.15	J202.18
	6	S5.16	J202.19
	7	S5.17	J202.20
7	0	S5.19	J202.24
	1	S5.20	J202.25
	2	S5.21	J202.26
	3	S5.22	J202.27
	4	S5.23	J202.28
	5	S5.24	J202.29
	6	S5.25	J202.30
	7	S5.26	J202.31
8	0	S5.28	J202.36
	1	S5.29	J202.37
	2	S5.30	J202.38
	3	S5.31	J202.39
	4	S5.32	J202.40
	5	S5.33	J202.41
	6	S5.34	J202.42
	7	S5.35	J202.43
9	0	S5.37	J202.47
	1	S5.38	J202.48
	2	S5.39	J202.49
	3	S5.40	J202.50
	4	S5.41	J202.51
	5	S5.42	J202.52
	6	S5.43	J202.53
	7	S5.44	J202.54
	Gnd Pins	S5.9; S5.18; S5.27 S5.36; S5.45	J202.1; J202.12 J202.23; J202.34 J202.35; J202.46 J202.57; J202.68

TABLE 15-2: PINOUT CROSS-REFERENCE TABLE VX4802 TO VTI 4802 (HANDSHAKE/TRI-STATE LINES)

SIGNAL	VX4802	VTI4802
Data Ack Out	S4.46	J201.11
Data Avail. Out	S4.47	J201.22
Data Ready In	S4.48	J201.33
Ready For Data In	S4.49	J201.44
ETS 0-4	S4.50	J201.10
ETS 0-4	S4.50	J201.21
ETS 0-4	S4.50	J201.32
ETS 0-4	S4.50	J201.44
ETS 0-4	S4.50	J201.55
ETS 9	S5.46	J202.55
ETS 8	S5.47	J202.44
ETS 7	S5.48	J202.32
ETS 6	S5.49	J202.21
ETS 5	S5.50	J202.10

VXI*PLUG&PLAY* COMMON FUNCTION CALLS

Rehosting

To replace obsolete components typically requires a great deal of software effort because there are often many test program sets that need to be changed. VXI Technology has greatly simplified this task by developing a translation driver set for the VX4802. The translation driver takes function calls to the VX4802 and converts them to VTI4802 calls. The result is that any code written to operate with the VX4802 can be used, without modification, when an VTI4802 is installed in its place.

All commonly used functions are supported in the translation driver set. For those functions not supported, VTI includes the translation driver source code for custom modification or will add the functions by request. A list of all *tkvx4802* functions supported in the translation driver set are listed in the following table.

TABLE 15-3: TKVX4802_32.DLL: VTI4802 TRANSLATION DRIVER SET, SUPPORTED FUNCTIONS

Class or Window			Function
Initialize			tkvx4802_init
Auto Initialize			tkvx4802_autoConnectToFirst
Auto Initialize			tkvx4802_autoConnectToSlot
Auto Initialize			tkvx4802_autoConnectToLA
Auto Initialize			tkvx4802_autoConnectToAll
Measure	Configure Measurement		tkvx4802_setByteMode
Measure	Configure Measurement		tkvx4802_setUpdateCondition
Measure	Configure Measurement		tkvx4802_setTristateMode
Measure	Configure Measurement		tkvx4802_externalTristateEnable
Measure	Configure Measurement		tkvx4802_setPulseStrobeSense
Measure	Read	Initiate	tkvx4802_defineMask
Measure	Read	Initiate	tkvx4802_setOutputData
Measure	Read	Initiate	tkvx4802_outputData
Measure	Read	Fetch	tkvx4802_queryStatus
Measure	Read	Fetch	tkvx4802_readInputs
Measure	Read	Fetch	tkvx4802_readByteData
Utility	Error Handling		tkvx4802_error_query
Utility	Error Handling		tkvx4802_error_message
Utility	Status		tkvx4802_queryEnableStatus
Utility	Status		tkvx4802_queryRelayDriverStatus
Utility	Status		tkvx4802_queryRelayDriverStatusAll
Utility	Status		tkvx4802_queryTriggerConfig
Utility	Status		tkvx4802_queryTriggerOccurance
Utility			tkvx4802_reset
Utility			tkvx4802_self_test
Utility			tkvx4802_revision_query
Utility			tkvx4802_getSlotList
Utility			tkvx4802_getSlotandLAList
Utility			tkvx4802_getSlotNumber
Utility			tkvx4802_getLogicalAddress
Utility			tkvx4802_getInstrDesc
Utility			tkvx4802_getManufacturerID
Utility			tkvx4802_getModelCode
Utility			tkvx4802_getVisaRev
Utility			tkvx4802_sleep
Close			tkvx4802_close

Exceptions

1.) Use of the vti4802 Driver requires the vtvm1548 driver to be installed on the system.

2.) The active levels for tri-state control on the VTI4802 are not selectable. A call to this function will return an error if the passed parameter attempts to set the Tri-State level to tkvx4802_ACTIVE_LEVEL_LOW. The External Tri-State Level is only valid in the tkvx4802_ACTIVE_LEVEL_HIGH state. When the VM1548 is in the INPUT mode, the device is in Input when the I/O line is High for a given port, and Output when the I/O line is low.

3.) Interrupt configuration via tkvx4802_enableDisableInterrupt does not support both RFDHandshake and DRDHandshake simultaneously.

4.) Simultaneous Input and Output Strobe updates are not supported.

5.) The Logical Address for the VTI4802 is the base logical address of the C-size module. There will be two consecutive Logical Addresses following this that will be consumed.

6.) The Base Logical Address MUST be set to a multiple of 4.

7.) The tkvx4802_queryStatus function is currently not implemented on the vti4802 Driver. Consult the factory for updates if this function is required for your application.

8.) There is no Soft Front Panel implementing the vti4802 driver. For instrument functionality evaluation, use the vtvm1548 Driver Soft Front Panel.

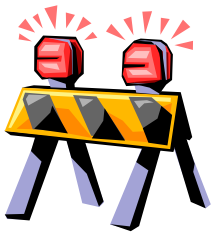
9.) Due to the nature of using two instruments to simulate one, the tkvx4802_write and tkvx4802_read functions cannot be supported on the vti4802.

10.) The tkvx4802_externalTristateEnable function is not supported. The VM1548's will always have the Tri-State capabilities enabled when they are in the Input mode.

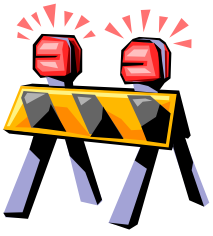
SECTION 16

TBD <73A455 TO AX11553: DUAL CHANNEL, MIL-STD-1553> TBD

THIS SECTION STILL UNDER CONSTRUCTION



TBD <SECTION 11 73A455 To AX11553 Dual Channel, MIL-STD-1553:> TBD



THIS SECTION STILL UNDER CONSTRUCTION

SECTION 17

VX4801 TO SM4801: 48 CH. TTL I/O

SPECIFICATION COMPARISONS

GENERAL SPECIFICATIONS	Tektronix VX4801	VXI Technology SM4801
MODEL TYPE	Isolated TTL I/O Module	TTL I/O Module
CONFIGURATION	80 Channel, TTL I/O Lines	96 Channel, TTL I/O Lines
INTERFACE TYPE	Message Based, SCPI, IEEE 488.2	Register Based
VXI REVISION LEVEL	1.4	1.4
INSTRUMENT DRIVERS	WIN framework (Rev. 4.0) WIN95 framework (Rev. 4.0) WINNT framework (Rev. 4.0)	 WIN95 framework (Rev. 4.0) WINNT framework (Rev. 4.0)
MODULE SIZE	Single-wide, C-size	Single-wide, C-size
ELECTRICAL SPECIFICATIONS		
OUTPUT HIGH VOLTAGE (V_{OH})	> 4.4 V	> 4.5 V maximum
OUTPUT LOW VOLTAGE (V_{OL})	< 0.4 V	< 0.4 V @ 300 mA
OUTPUT LOW CURRENT (I_{OL})	< 24 mA	< 300 mA
INPUT HIGH VOLTAGE (V_{IH})	> 2.0 V	> 2.0 V
INPUT LOW VOLTAGE (V_{IL})	> 0.8 V	> 1.5 V
INPUT CURRENT	230 μA maximum	100 μA maximum
TRI-STATE LEAKAGE	0.5 μA typical (5.0 μA maximum)	N/A
ISOLATION RESISTANCE	> 100 x 10^6	N/A
ISOLATION VOLTAGE	> 500 V dc	N/A

INTERFACING TO THE MODULE

The SM4801 has one 160-pin high density ERNI connector on its front panel for I/O interfacing. A mating connector is shipped with the assembly. The outputs of the SM4801 do not go into tri-state mode. Tri-state mode is emulated by programming the bi-directional ports as inputs. **Also, it is important to note that the SM4801 data ports are not isolated.**

In many ATE applications, a termination panel for the instrumentation is utilized. This termination panel will have connectors that mate to the UUT or an intermediate test fixture. A termination panel may take the form of an Interconnect Assembly (ICA) made by manufacturers such as Virginia Panel or Macpanel. In either case, it is desirable to maintain the same I/O layout at the panel to avoid costly redesign of test fixturing or UUT cable assemblies.

VXI Technology offers a couple of options that prevent the need for any interface panel to UUT redesign as follows:

- wired funnel assemblies that mate directly to the SM4801 front panel
- custom cabling between SM4801 front panel and ICA/termination panel

For customers who plan on developing their own cabling between the SM4801 and the termination panel, this section provides a cross-reference pinout table between the VX4801 and the SM4801 in Tables 17-1 and 17-2.

FIGURE 17-1: PINOUT CROSS-REFERENCE (FRONT PANEL DIAGRAM) VX4801 TO SM4801

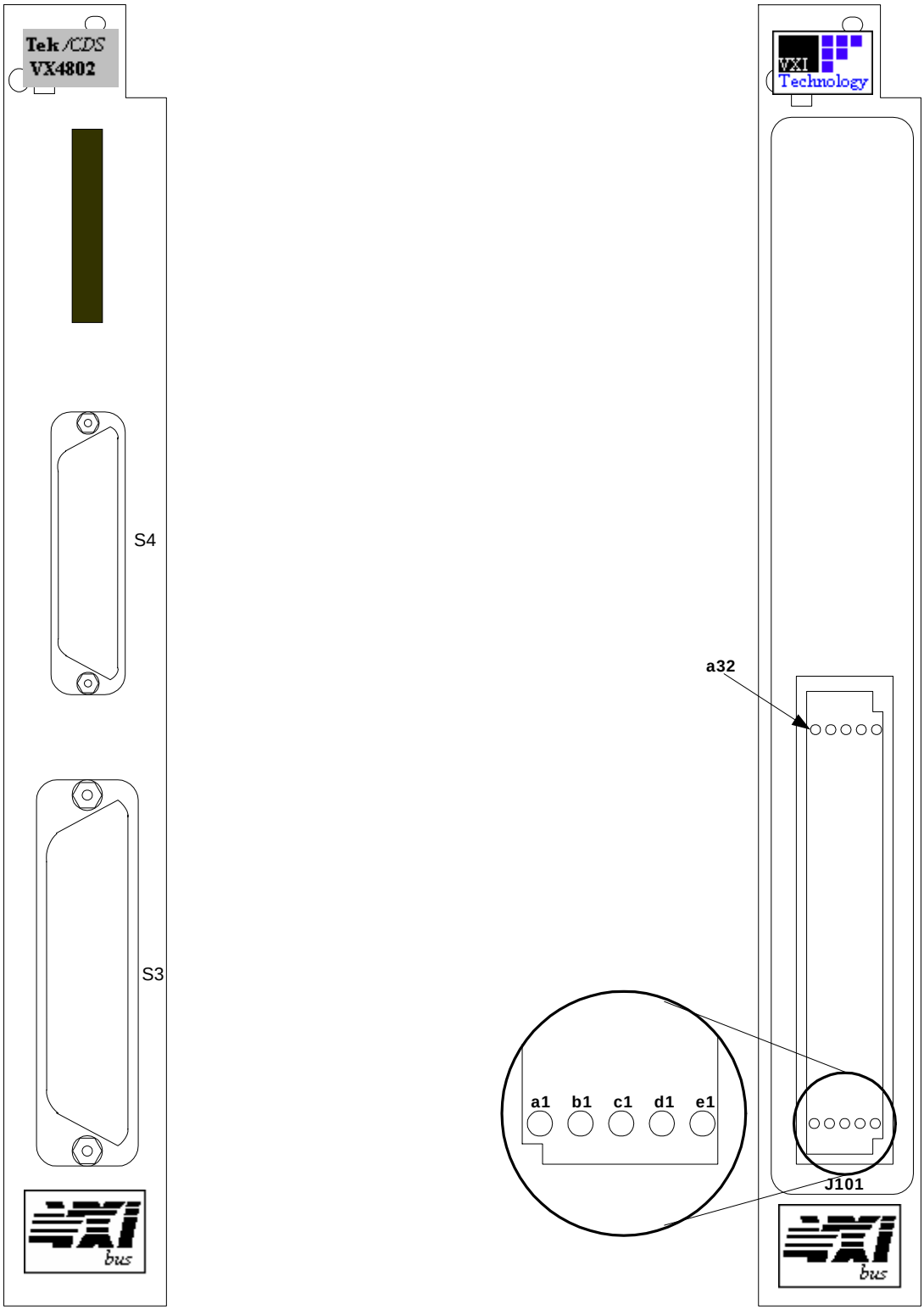


TABLE 17-1: PINOUT CROSS-REFERENCE TABLE VX4801 TO SM4801 (I/O AND GND LINES)

Byte	Bit	VX4801 Pinout	SM4801 Pinout
0	0	S3.7	J100.A1
	1	S3.8	J100.A2
	2	S3.9	J100.A3
	3	S3.10	J100.A4
	4	S3.11	J100.A5
	5	S3.12	J100.A6
	6	S3.13	J100.A7
	7	S3.14	J100.A8
1	0	S3.20	J100.A9
	1	S3.21	J100.A10
	2	S3.22	J100.A11
	3	S3.23	J100.A12
	4	S3.24	J100.A13
	5	S3.25	J100.A14
	6	S3.26	J100.A15
	7	S3.27	J100.A16
2	0	S3.30	J100.B1
	1	S3.31	J100.B2
	2	S3.32	J100.B3
	3	S3.33	J100.B4
	4	S3.34	J100.B5
	5	S3.35	J100.B6
	6	S3.36	J100.B7
	7	S3.37	J100.B8
	Gnd Pins	S3.3; S3.4; S3.15 S3.18; S3.28; S3.29;S3.38;S3.40 S3.41;S3.50;	J100.D25;D26 J100.D27;D28 J100.D29;D30 J100.D31;D32

Byte	Bit	VX4801 Pinout	SM4801 Pinout
3	0	S3.42	J100.B9
	1	S3.43	J100.B10
	2	S3.44	J100.B11
	3	S3.45	J100.B12
	4	S3.46	J100.B13
	5	S3.47	J100.B14
	6	S3.48	J100.B15
	7	S3.49	J100.B16
4	0	S4.3	J100.C1
	1	S4.4	J100.C2
	2	S4.5	J100.C3
	3	S4.6	J100.C4
	4	S4.7	J100.C5
	5	S4.8	J100.C6
	6	S4.9	J100.C7
	7	S4.10	J100.C8
5	0	S4.16	J100.C9
	1	S4.17	J100.C10
	2	S4.18	J100.C11
	3	S4.19	J100.C12
	4	S4.20	J100.C13
	5	S4.21	J100.C14
	6	S4.22	J100.C15
	7	S4.23	J100.C16
	Gnd Pins	S4.1; S4.2; S4.11 S4.14; S4.15 S4.24;S4.25	J100.E27;E28 J100.E29;E30 J100.E31;E32

TABLE 17-2: PINOUT CROSS-REFERENCE TABLE VX4801 TO SM4801 (HANDSHAKE/TRI-STATE LINES)

SIGNAL	VX4801	SM4801
Ready for Data Out	S3.1	J100.D2
Data Ready In	S3.2	J100.E2
Data Available In	S3.5	J100.D6
Data Ack Out	S3.6	J100.E6
ETS 0	S3.16	J100.D3
ETS 1	S3.19	J100.E3
ETS 2	S3.39	J100.D7
ETS 3	S3.17	J100.E7
ETS 4	S4.12	J100.D11
ETS 5	S4.13	J100.E11

VXI*PLUG&PLAY* COMMON FUNCTION CALLS

Rehosting

To replace obsolete components typically requires a great deal of software effort because there are often many test program sets that need to be changed. VXI Technology has greatly simplified this task by developing a translation driver set for the VX4801. The translation driver takes function calls to the VX4801 and converts them to SM4801 calls. The result is that virtually any code written to operate with the VX4801 can be used, without modification, when an SM4801 is installed in its place.

All commonly used functions are supported in the translation driver set. For those functions not supported, VTI includes the translation driver source code for custom modification or will add the functions by request. A list of all tkvx4801 functions supported in the translation driver set are listed in the following table.

TABLE 17-3: TKVX4801_32.DLL: SM4801 TRANSLATION DRIVER SET, SUPPORTED FUNCTIONS

Class or Window			Function
Initialize			tkvx4801_init
Auto Initialize			tkvx4801_autoConnectToFirst
Auto Initialize			tkvx4801_autoConnectToSlot
Auto Initialize			tkvx4801_autoConnectToLA
Auto Initialize			tkvx4801_autoConnectToAll
Measure	Configure Measurement		tkvx4801_setByteMode
Measure	Configure Measurement		tkvx4801_setUpdateCondition
Measure	Configure Measurement		tkvx4801_setTristateMode
Measure	Configure Measurement		tkvx4801_externalTristateEnable
Measure	Configure Measurement		tkvx4801_setPulseStrobeSense
Measure	Read	Initiate	tkvx4801_defineMask
Measure	Read	Initiate	tkvx4801_setOutputData
Measure	Read	Initiate	tkvx4801_outputData
Measure	Read	Fetch	tkvx4801_queryStatus
Measure	Read	Fetch	tkvx4801_readInputs
Measure	Read	Fetch	tkvx4801_readByteData
Utility	Error Handling		tkvx4801_error_query
Utility	Error Handling		tkvx4801_error_message
Utility	Status		tkvx4801_queryEnableStatus
Utility	Status		tkvx4801_queryRelayDriverStatus
Utility	Status		tkvx4801_queryRelayDriverStatusAll
Utility	Status		tkvx4801_queryTriggerConfig
Utility	Status		tkvx4801_queryTriggerOccurance
Utility			tkvx4801_reset
Utility			tkvx4801_self_test
Utility			tkvx4801_revision_query
Utility			tkvx4801_getSlotList
Utility			tkvx4801_getSlotandLAList
Utility			tkvx4801_getSlotNumber
Utility			tkvx4801_getLogicalAddress
Utility			tkvx4801_getInstrDesc
Utility			tkvx4801_getManufacturerID
Utility			tkvx4801_getModelCode
Utility			tkvx4801_getVisaRev
Utility			tkvx4801_sleep
Close			tkvx4801_close

Exceptions

1.) Set Tri-State level is not supported. The active levels for tri-state control on the SM4801 are not selectable. A call to this function will return an error.

2.) Simultaneous Input/Output strobing is not supported.

3.) Enable/Disable Interrupt is currently not supported.

4.) The QueryStatus function is currently not supported.

SECTION 18

VX4802 TO SM4802: 96 CH. TTL I/O

SPECIFICATION COMPARISONS

GENERAL SPECIFICATIONS	Tektronix VX4802	VXI Technology SM4802
MODEL TYPE	Isolated TTL I/O Module	TTL I/O Module
CONFIGURATION	80 Channel, TTL I/O Lines	96 Channel, TTL I/O Lines
INTERFACE TYPE	Message Based, SCPI, IEEE 488.2	Register Based
VXI REVISION LEVEL	1.4	1.4
INSTRUMENT DRIVERS	WIN framework (Rev. 4.0) WIN95 framework (Rev. 4.0) WINNT framework (Rev. 4.0)	 WIN95 framework (Rev. 4.0) WINNT framework (Rev. 4.0)
MODULE SIZE	Single-wide, C-size	Single-wide, C-size
ELECTRICAL SPECIFICATIONS		
OUTPUT HIGH VOLTAGE (V_{OH})	> 4.4 V	> 4.5 V maximum
OUTPUT LOW VOLTAGE (V_{OL})	< 0.4 V	< 0.4 V @ 300 mA
OUTPUT LOW CURRENT (I_{OL})	< 24 mA	< 300 mA
INPUT HIGH VOLTAGE (V_{IH})	> 2.0 V	> 2.0 V
INPUT LOW VOLTAGE (V_{IL})	> 0.8 V	> 1.5 V
INPUT CURRENT	230 μA maximum	100 μA maximum
TRI-STATE LEAKAGE	0.5 μA typical (5.0 μA maximum)	N/A
ISOLATION RESISTANCE	> 100 x 10^6	N/A
ISOLATION VOLTAGE	> 500 V dc	N/A

INTERFACING TO THE MODULE

The SM4802 has one 160-pin high density ERNI connector on its front panel for I/O interfacing. One mating connector is shipped with the assembly. The outputs of the SM4802 do not go into tri-state mode. Tri-state mode is simulated by programming the bi-directional ports as inputs.

In many ATE applications, a termination panel for the instrumentation is utilized. This termination panel will have connectors that mate to the UUT or an intermediate test fixture. A termination panel may take the form of an Interconnect Assembly (ICA) made by manufacturers such as Virginia Panel or Macpanel. In either case, it is desirable to maintain the same I/O layout at the panel to avoid costly redesign of test fixturing or UUT cable assemblies.

VXI Technology offers a couple of options that prevent the need for any interface panel to UUT redesign as follows:

- wired funnel assemblies that mate directly to the SM4802 front panel
- custom cabling between SM4802 front panel and ICA/termination panel

For customers who plan on developing their own cabling between the SM4802 and the termination panel, this section provides a cross-reference pinout table between the VX4802 and the SM4802 in Table 18-1 and Table 18-2.

FIGURE 18-1: PINOUT CROSS-REFERENCE (FRONT PANEL DIAGRAM) VX4802 TO SM4802

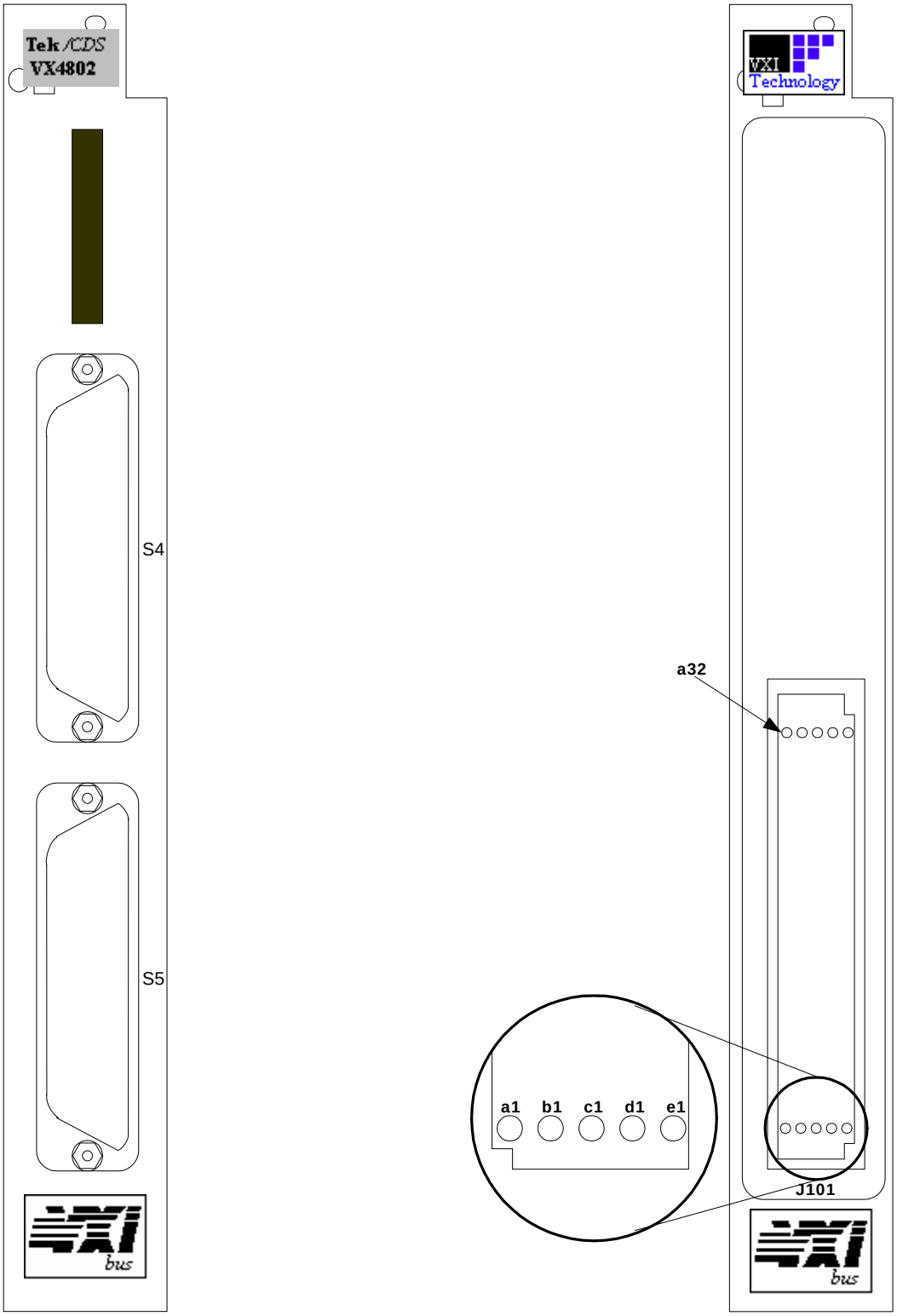


TABLE 18-1: PINOUT CROSS-REFERENCE TABLE VX4802 TO SM4802 (I/O AND GND LINES)

		VX4802	SM4802
BYTE	BIT	PINOUT	PINOUT
0	0	S4.1	J100.A1
	1	S4.2	J100.A2
	2	S4.3	J100.A3
	3	S4.4	J100.A4
	4	S4.5	J100.A5
	5	S4.6	J100.A6
	6	S4.7	J100.A7
	7	S4.8	J100.A8
1	0	S4.10	J100.A9
	1	S4.11	J100.A10
	2	S4.12	J100.A11
	3	S4.13	J100.A12
	4	S4.14	J100.A13
	5	S4.15	J100.A14
	6	S4.16	J100.A15
	7	S4.17	J100.A16
2	0	S4.19	J100.B1
	1	S4.20	J100.B2
	2	S4.21	J100.B3
	3	S4.22	J100.B4
	4	S4.23	J100.B5
	5	S4.24	J100.B6
	6	S4.25	J100.B7
	7	S4.26	J100.B8
3	0	S4.28	J100.B9
	1	S4.29	J100.B10
	2	S4.30	J100.B11
	3	S4.31	J100.B12
	4	S4.32	J100.B13
	5	S4.33	J100.B14
	6	S4.34	J100.B15
	7	S4.35	J100.B16
4	0	S4.37	J100.C1
	1	S4.38	J100.C2
	2	S4.39	J100.C3
	3	S4.40	J100.C4
	4	S4.41	J100.C5
	5	S4.42	J100.C6
	6	S4.43	J100.C7
	7	S4.44	J100.C8
	Gnd Pins	S4.9; S4.18; S4.27, S4.36, S4.45	J100.D25, D26 J100.D27; D28 J100.D29; D30

		VX4802	SM4802
BYTE	BIT	PINOUT	PINOUT
5	0	S5.1	J100.C9
	1	S5.2	J100.C10
	2	S5.3	J100.C11
	3	S5.4	J100.C12
	4	S5.5	J100.C13
	5	S5.6	J100.C14
	6	S5.7	J100.C15
	7	S5.8	J100.C16
6	0	S5.10	J100.A17
	1	S5.11	J100.A18
	2	S5.12	J100.A19
	3	S5.13	J100.A20
	4	S5.14	J100.A21
	5	S5.15	J100.A22
	6	S5.16	J100.A23
	7	S5.17	J100.A24
7	0	S5.19	J100.A25
	1	S5.20	J100.A26
	2	S5.21	J100.A27
	3	S5.22	J100.A28
	4	S5.23	J100.A29
	5	S5.24	J100.A30
	6	S5.25	J100.A31
	7	S5.26	J100.A32
8	0	S5.28	J100.B17
	1	S5.29	J100.B18
	2	S5.30	J100.B19
	3	S5.31	J100.B20
	4	S5.32	J100.B21
	5	S5.33	J100.B22
	6	S5.34	J100.B23
	7	S5.35	J100.B24
9	0	S5.37	J100.B25
	1	S5.38	J100.B26
	2	S5.39	J100.B27
	3	S5.40	J100.B28
	4	S5.41	J100.B29
	5	S5.42	J100.B30
	6	S5.43	J100.B31
	7	S5.44	J100.B32
	Gnd Pins	S5.9; S5.18; S5.27, S5.36, S5.45	J100.D25, D26 J100.D27; D28 J100.D29; D30

TABLE 18-2: PINOUT CROSS-REFERENCE TABLE VX4802 TO SM4802 (HANDSHAKE/TRI-STATE LINES)

SIGNAL	VX4802	SM4802
Data Ack Out	S4.46	J100.D2
Data Avail. Out	S4.47	J100.E2
Data Ready In	S4.48	J100.D6
Ready For Data In	S4.49	J100.E6
ETS 0 – 4	S4.50	J100.D3
ETS 0 – 4	S4.50	J100.E3
ETS 0 – 4	S4.50	J100.D7
ETS 0 – 4	S4.50	J100.E7
ETS 0 – 4	S4.50	J100.D11
ETS 9	S5.46	J100.E19
ETS 8	S5.47	J100.D19
ETS 7	S5.48	J100.E15
ETS 6	S5.49	J100.D15
ETS 5	S5.50	J100.E11

VXI*PLUG&PLAY* COMMON FUNCTION CALLS

Rehosting

To replace obsolete components typically requires a great deal of software effort because there are often many test program sets that need to be changed. VXI Technology has greatly simplified this task by developing a translation driver set for the VX4802. The translation driver takes function calls to the VX4802 and converts them to SM4802 calls. The result is that virtually any code written to operate with the VX4802 can be used, without modification, when an SM4802 is installed in its place.

All commonly used functions are supported in the translation driver set. For those functions not supported, VTI includes the translation driver source code for custom modification or will add the functions by request. A list of all tkvx4802 functions supported in the translation driver set are listed in the following table.

Exceptions

1.) Set Tri-State level is not supported. The active levels for tri-state control on the SM4802 are not selectable. A call to this function will return an error.

2.) Simultaneous Input/Output strobing is not supported.

3.) Enable/Disable Interrupt is currently not supported.

4.) The QueryStatus function is currently not supported.

TABLE 18-3: TKVX4802_32.DLL: VTSM4802 TRANSLATION DRIVER SET, SUPPORTED FUNCTIONS

Class or Window			Function
Initialize			tkvx4802_init
Auto Initialize			tkvx4802_autoConnectToFirst
Auto Initialize			tkvx4802_autoConnectToSlot
Auto Initialize			tkvx4802_autoConnectToLA
Auto Initialize			tkvx4802_autoConnectToAll
Measure	Configure Measurement		tkvx4802_setByteMode
Measure	Configure Measurement		tkvx4802_setUpdateCondition
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